



LIFE+



Environment Policy & Governance

Projects 2010



EUROPEAN
COMMISSION



environment

LIFE+ Environment Policy & Governance 2010: Commission funds 104 innovation projects in 18 countries with €109 million

The European Commission has approved funding for 104 new environmental innovation projects in 18 countries under the LIFE+ Environment Policy & Governance programme 2010. These projects will demonstrate new methods and techniques for dealing with a wide diversity of Europe's environmental problems. The projects are led by 'beneficiaries', or project promoters, based in Belgium, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Malta, the Netherlands, Poland, Romania, Slovakia, Spain, Sweden and the United Kingdom. They represent a total investment of €286 million, of which the EU will provide some €109 million.

LIFE+ Environment Policy & Governance in 2010

The Environment Policy & Governance strand of LIFE+ supports pilot projects that contribute to the development of innovative policy ideas, technologies, methods and instruments. Of the 399 proposals received, the Commission selected 104 projects for funding from a wide range of public and private sector organisations. The winning projects, situated in 18 Member States, represent a total investment of €286 million, of which the EU will provide €109 million.

Projects targeting waste and natural resources account for the lion's share of this funding (some €143 million for 51 projects). The Commission will contribute more than €16 million to 14 projects directly tackling climate change, with a total budget of €40 million. In addition, 12 projects focusing on other issues will also have an indirect impact on greenhouse gas emissions. Water is another important area of focus, with nine projects selected. The remaining projects cover various topics including air, chemicals, environment and health, forests, innovation, noise, soil protection, strategic approaches, and the urban environment.

Background

LIFE is the EU's financial instrument supporting environmental and nature conservation projects throughout the EU and in certain non-EU countries. Since

1992, LIFE has co-financed some 3 500 projects, contributing approximately €2.7 billion to the protection of the environment. LIFE+ is the new European financial instrument for the environment with a total budget of €2 143 billion for the period 2007-2013. During this period, the Commission will launch one call for LIFE+ project proposals per year.

LIFE+ Environment Policy & Governance is one of three thematic components under the LIFE programme. The other two components, LIFE+ Nature & Biodiversity and LIFE+ Information & Communication, focus respectively on improving the conservation status of endangered species and habitats; and on disseminating information and raising the profile of environmental issues or providing training and awareness-raising for the prevention of forest fires.

More information on each LIFE+ project is available at: <http://ec.europa.eu/environment/life/project/Projects/index.cfm>

It is also possible to contact the relevant national authorities: <http://ec.europa.eu/environment/life/contact/nationalcontact/index.htm>

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Location	Project number	Title of project
BELGIUM	LIFE10 ENV/BE/000696 AGICAL+	Validation of an environmentally friendly system, combining CO ₂ capture and biofuel production based on algae culture for industrial exhaust application
	LIFE10 ENV/BE/000699 DEMETER	Sustainable and integrated soil management to reduce environmental effects
CYPRUS	LIFE10 ENV/CY/000721 DAIRIUS	Sustainable management via energy exploitation of end-of-life dairy products in Cyprus
	LIFE10 ENV/CY/000723 CYPADAPT	Development of a national strategy for adaptation to climate change adverse impacts in Cyprus
CZECH REPUBLIC	LIFE10 ENV/CZ/000649 ReStEP	Regional Sustainable Energy Policy based on the Interactive Map of Sources
	LIFE10 ENV/CZ/000651 MEDETOX	Innovative Methods of Monitoring of Diesel Engine Exhaust Toxicity in Real Urban Traffic
DENMARK	LIFE10 ENV/DK/000098 Plastic zero	Plastic ZERO - Public Private Cooperation's for avoiding plastic as a waste
FINLAND	LIFE10 ENV/FI/000059 Odourless casting	Odour and hazardous emission abatement of foundries
	LIFE10 ENV/FI/000060 ARIT	Framework for Sustainable Management of Shooting Ranges
	LIFE10 ENV/FI/000062 ASROCKS	Guidelines for Sustainable Exploitation of Aggregate Resources in Areas with Elevated Arsenic Concentrations
	LIFE10 ENV/FI/000063 LifeData	Knowledge based data services -improving the life cycle and accessibility of environmental data provided for public interest
FRANCE	LIFE10 ENV/FR/000202 ICARRE 95	Industrial Platform Demonstrator to achieve 95% recycling of the "end-of-life vehicle"
	LIFE10 ENV/FR/000207 URBAN LIGHT PLAN	An innovative and sustainable plan for managing public lighting and combatting light pollution in Le Mans Métropole
	LIFE10 ENV/FR/000208 FO3REST	Ozone and Climate Change Impacts on French and Italian Forests: Refinement of criteria and thresholds for forest protection
	LIFE10 ENV/FR/000211 HARMONICA	HARMONised Noise Information for Citizens and Authorities
	LIFE10 ENV/FR/000215 R-URBAN	R-URBAN / Participative strategy of development, practices and networks of local resilience for European cities
GERMANY	LIFE10 ENV/DE/000126 AlternativeBiomass4Energy	Sustainable biomass production, processing and demonstration of alternative cropping and energy systems

Location	Project number	Title of project
	LIFE10 ENV/DE/000158 HWC - Jenfelder Au	Hamburg Water Cycle - Jenfelder Au
GREECE	LIFE10 ENV/GR/000594 WASTEREUSE	Best practices for agricultural wastes treatment and reuse in the Mediterranean countries
	LIFE10 ENV/GR/000596 CONDENSE	The condense managing system: production of novel fertilisers from manure and olive mill wastewater
	LIFE10 ENV/GR/000601 CHARM	Chromium in Asopos groundwater system: remediation technologies and measures
	LIFE10 ENV/GR/000605 Athens-Bio-waste	Integrated management of bio-waste in Greece – the case study of Athens
	LIFE10 ENV/GR/000606 ELINA	Integrated green life-cycle management of waste oils and petroleum residues
	LIFE10 ENV/GR/000610 ISWM-TINOS	Development and implementation of a demonstration system on Integrated Solid Waste Management for Tinos in line with the Waste Framework Directive
	LIFE10 ENV/GR/000617 ArcFUEL	Mediterranean fuel maps geodatabase for wildland & forest fire safety
	LIFE10 ENV/GR/000622 WASP Tool	Development and demonstration of a waste prevention support tool for local authorities
IRELAND	LIFE10 ENV/IE/000695 DEPOTEC	Depolymerisation Technology for Rubber with Energy Optimisation to produce Carbon Products
ITALY	LIFE10 ENV/IT/000307 NO.WA	NO WASTE
	LIFE10 ENV/IT/000308 WW-SIP	From Urban Wastewater Treatment Plant to Self Sustainable Integrated Platform for Wastewater Refinement
	LIFE10 ENV/IT/000314 CREWSOD	Waste Collection Rewarding System On Demand
	LIFE10 ENV/IT/000321 ZeoLIFE	Water Pollution Reduction and Water Saving Using a Natural Zeolite Cycle
	LIFE10 ENV/IT/000323 RHM Pilot Plant	Integrated Renewable-Hydrogen-Magnesium (RHM) pilot plant for green-energy high-capacity production
	LIFE10 ENV/IT/000324 PURA4IPM	Pesticides Use Reduction in Agriculture: demonstration of an innovative Integrated Pest Management technology
	LIFE10 ENV/IT/000325 SUSTABS	New Absorbing Materials and Technologies for Feminine Hygiene Products with Reduced Waste
	LIFE10 ENV/IT/000327 MED-PARTICLES	Particles size and composition in Mediterranean countries: geographical variability and short-term health effects
	LIFE10 ENV/IT/000331 HIA21	Participated assessment of the health, environmental and socioeconomic impacts deriving from the handling of urban waste
	LIFE10 ENV/IT/000341 RECOIL	Recovered waste cooking oil for combined heat and power production

Location	Project number	Title of project
ITALY	LIFE10 ENV/IT/000343 GREEN SITE	Green Site: supercritical fluid technologies for river and sea dredge sediment remediation
	LIFE10 ENV/IT/000346 SASIES	Sludges from agglomerated stones industry for environmental sustainability
	LIFE10 ENV/IT/000347 UNIZEO	Urea-based nitrogenous fertilisers coated with zeolite: reducing drastically pollution due to nitrogen
	LIFE10 ENV/IT/000356 Gy.Eco	Gyproc Eco-friendly
	LIFE10 ENV/IT/000364 ECOFATTING	Environmentally friendly natural products instead of chloroparaffins in the fatting phase of the tanning cycle
	LIFE10 ENV/IT/000365 PODEBA	Use of poultry dejection for the bathing phase in the tanning cycle
	LIFE10 ENV/IT/000367 Sustainable Cruise	Sustainable Cruise - Prototypes and approaches for raising the waste hierarchy on board and certifying it
	LIFE10 ENV/IT/000369 LCA4PORTS	European Ports Life Cycle Assessment (LCA)
	LIFE10 ENV/IT/000373 LOWaste	LOcal Waste Market for second life products
	LIFE10 ENV/IT/000380 AQUOR	Implementation of a water saving and artificial recharging participated strategy for the quantitative groundwater layer rebalance of the upper Vicenza plain
	LIFE10 ENV/IT/000389 INTEGREEN	Integration of Traffic and Environmental data for improving green policies in the city of Bolzano
	LIFE10 ENV/IT/000390 TyRec4LIFE	Development and Implementation of Innovative and Sustainable Technologies for the Use of Scrap Tyre Rubber in Road Pavements
	LIFE10 ENV/IT/000391 DIAPASON	Desert-dust Impact on Air quality through model-Predictions and Advanced Sensors ObservatioNs
	LIFE10 ENV/IT/000393 IDENTIS WEEE	Identification determination traceability integrated system for WEEE
	LIFE10 ENV/IT/000394 WARBO	Water re-born - artificial recharge: innovative technologies for the sustainable management of water resources
	LIFE10 ENV/IT/000397 H-REII DEMO	Integrated fumes depuration and heat recovery system in energy intensive industries
LIFE10 ENV/IT/000399 EMoNFUr	Establishing a monitoring network to assess lowland forest and urban plantation in Lombardy and urban forest in Slovenia	
LIFE10 ENV/IT/000400 New Life	Environmental recovery of degraded and desertified soils by a new treatment technology for land reconstruction	
LIFE10 ENV/IT/000401 ECO Courts	Ecological courtyards united for resources saving through smart technologies and life style	

Location	Project number	Title of project
ITALY	LIFE10 ENV/IT/000404 NOW	No more organic waste. A new integrated system to eliminate organic waste in the organised large scale distribution
	LIFE10 ENV/IT/000407 QUADMAP	Quiet areas definition and management in action plans
	LIFE10 ENV/IT/000419 Waste3	Extreme energyfree valorisation of copper metallurgical waste in heating elements and semiconductive nanoceramic enamels
	LIFE10 ENV/IT/000423 B.R.A.V.E.	Better Regulation Aimed at Valorising Emas
	LIFE10 ENV/IT/000427 LEAD-COLOURED LEAD-FREE	Replacement of toxic lead compounds by new non-toxic substitutes as brilliant aid agent in polychromatic glazes
LIFE10 ENV/IT/000428 Clash Oil	Use of graphite and biolubricants stabilized by engineered active surfaces for the fluxing of transmission and gearing	
MALTA	LIFE10 ENV/MT/000088 DemoEV	Demonstration of the feasibility of electric vehicles towards climate change mitigation
THE NETHERLANDS	LIFE10 ENV/NL/000027 PST	Aim to realise 95% ELV-recycling in the Netherlands by means of post shredder technology
	LIFE10 ENV/NL/000028 OMZET	Waste water treatment as energy and mineral recovery utility
POLAND	LIFE10 ENV/PL/000661 Biorewit	New soil improvement products for reducing the pollution of soils and waters and revitalizing the soil system
	LIFE10 ENV/PL/000662 OIM-WASTE	Demonstration Installation for manufacture of light-weight aggregate from sewage sludge and waste silica
ROMANIA	LIFE10 ENV/RO/000726 ELSYS	Establish an electronic system for exchanging data on shipments of waste
	LIFE10 ENV/RO/000727 VAL-C&DW	Valuating the demolition and construction waste in Buzau County, Romania
	LIFE10 ENV/RO/000729 EcoWASTES	New building materials by eco-sustainable recycling of industrial wastes
	LIFE10 ENV/RO/000731 MEDWASTE	Microwaves ecofriendly alternative for a safe treatment of medical waste
	LIFE10 ENV/RO/000734 ALGAE-GHG	Carbon Dioxide Mitigation from Green House Gases in Algal Photosynthetic Systems
SLOVAK REPUBLIC	LIFE10 ENV/SK/000086 Geohealth	The impact of geological environment on health status of residents of the Slovak Republic
SPAIN	LIFE10 ENV/ES/000431 WET-COMP	Wet-laid technology application for textile residues revalorisation in composites industry
	LIFE10 ENV/ES/000439 EWsolutions4OLDhousing	Tackling climate change: innovative technologies for efficient use of resources and energy in housing restoration

Location	Project number	Title of project
SPAIN	LIFE10 ENV/ES/000442 UNIDIGES	Demonstrative plant for manure management of a medium size exploitation by anaerobic digestion and agronomic valorisation of the digestate
	LIFE10 ENV/ES/000456 MEDICOOL	Demonstration of a smart solar cooling/heating system in a pharmaceutical warehouse for validation, demonstration and transfer of an innovative cooling system
	LIFE10 ENV/ES/000458 ECOGLAUCA ÉRGON	Project of demonstration about the use of Nicotiana glauca as energetic crop in fighting against the climate change and the soil erosion
	LIFE10 ENV/ES/000460 REC-POLYOLEFIN	Design and development of a demonstrative recycling line for the separation of post-consumer polyolefin mixtures
	LIFE10 ENV/ES/000469 AGROWASTE	Sustainable strategies for integrated management of agroindustrial fruit and vegetable wastes
	LIFE10 ENV/ES/000470 HTWT	High Technology Waste Treatment
	LIFE10 ENV/ES/000471 Crops for better soil	Profitable organic farming techniques based on traditional crops: contrasting soil degradation in the Mediterranean
	LIFE10 ENV/ES/000478 NITRATES	Repercussion of Agricultural Activities in Nitrate Contamination of Continental Water
	LIFE10 ENV/ES/000479 BREAD4PLA	Demonstration-Plant Project to Produce Poly-Lactic Acid (PLA) Biopolymer from Waste Products of Bakery Industry
	LIFE10 ENV/ES/000480 RECYSLURRY	Valorisation and recycling of slurries produced during manufacturing stone sector to use as raw materials for industrial applications
	LIFE10 ENV/ES/000486 AGROLCA-Manager	Environmental Sustainability Software Tool for the Agroindustrial Sector
	LIFE10 ENV/ES/000494 People CO2Cero	Mobilisation and empowerment of citizens and key agents in the city, for improvement of urban environment in the city of Soria (Spain)
	LIFE10 ENV/ES/000496 CO2ALGAEFIX	CO ₂ capture and bio-fixation through microalgal culture
	LIFE10 ENV/ES/000511 EUTROMED	Demonstrative technique to prevent eutrophication caused by agricultural nitrogen in surface flow water of Mediterranean climate zones
	LIFE10 ENV/ES/000514 RECYTRACK	Elastomeric "Eco-Friendly" Material based on End-Of-Life Tyres blended with organic Bind Resin for Railway Applications
LIFE10 ENV/ES/000515 NEW JERSEY	New Generation of New-Jersey Safe-Barriers Using Recycled Materials and Rubber from End-Of-Life Tyres	
LIFE10 ENV/ES/000516 POLYMIX	Polymer Wastes in Asphalt Mixes: a Way to Increase Sustainability of Roads Infrastructures	
LIFE10 ENV/ES/000520 AQUAENVEC	Assessment and improvement of the urban water cycle eco-efficiency using LCA and LCC	

Location	Project number	Title of project
SPAIN	LIFE10 ENV/ES/000521 AQUATIK	Development and validation of advanced monitoring system for control of organic priority pollutants in treated wastewater effluents
	LIFE10 ENV/ES/00053 OURWASTECH	Innovative Urban Waste Treatment: A Sustainable Approach Using Hydrodynamic and Biological Technologies
SWEDEN	LIFE10 ENV/SE/000035 SLIDE IN	Life without oil: Slide in - energy efficient and fossil-free public transportation for a sustainable society
	LIFE10 ENV/SE/000037 PVCFreeBloodBag	Public healthcare and plastics makers demonstrate how to remove barriers to PVC-free blood bags in the spirit of REACH
	LIFE10 ENV/SE/000038 Wastetofuel	Waste to fuel - turning climate hazardous landfills to promoters for development of climate friendly transportation solutions
	LIFE10 ENV/SE/000041 HYPER BUS	Hyper Bus - Hybrid and plug-in extended range bus system
	LIFE10 ENV/SE/000042 HYDROFLUSS	Hydrofluss - Regeneration of hazardous waste into valuable raw material for the European steel industry
UNITED KINGDOM	LIFE10 ENV/UK/000173 LiveWell for LIFE	Livewell plate for low impact food in Europe
	LIFE10 ENV/UK/000175 CLEAR Info	Company level environmental accountability reporting and information
	LIFE10 ENV/UK/000176 EQual	Ensuring quality of waste-derived products to achieve resource efficiency
	LIFE10 ENV/UK/000182 SEWeb	Scotland's environmental web

Validation of an environmentally friendly system, combining CO₂ capture and biofuel production based on algae culture for industrial exhaust application

Project background

By using an algae culture for carbon capture, it is estimated that CO₂ emissions and fossil fuel consumption in the lime and glass production industries can be significantly reduced – by up to 25% for the former (15% for glass production) and 45% for the latter (15% for glass production). This technique also may be applicable to other industries, and could be adapted for other production processes that use melting furnaces and generate high CO₂ emissions (e.g. the steel or cement industries).

Project objectives

The AGICAL+ project proposes to implement an innovative solution, based on algae culture and biomass production, which will allow for the CO₂ capture of lime or glass furnace fumes and the production of biofuel that can be used within the furnaces during the production process.

At pilot scale (1 ha of algae culture), the final aim of this project is to demonstrate that the environmental impact of industries can be reduced up to 360 tonnes/yr of CO₂ emissions and up to 2 460 GJ/yr of fossil fuel in the case of lime and glass production processes.

To reach these ambitious environmental objectives, two implementation steps will be necessary. Firstly, the project will launch a pilot prototype and apply the experience gained from this to further refine a second pilot. In the first step, the aim is to reach a capturing of 270 tonnes/yr of CO₂, and a production of 1 800 GJ/yr of biomass.

The project will demonstrate the technical economic viability in two representative industrial processes: (i) the implementation of the algae culture pilot for a glass production furnace – the first pilot – will validate the process for fumes with moderate CO₂ concentrations and high fume temperatures (600-650 °C) with many pollutants; and (ii) the lime application – the second pilot – will validate the process for high CO₂ concentration and low temperature (100-125 °C) fumes. To optimise the overall environmental benefit, the energy consumption of the process will be limited as much as possible and thermal energy that is available on the

LIFE10 ENV/BE/000696
AGICAL+



Beneficiary:

Type of beneficiary

International enterprise

Name of beneficiary

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Name of contact person

Christophe BOONAERT

Duration of project:

59 months (01/11/2011 - 30/09/2016)

Total budget in euro:

9,152,158.00

EC contribution in euro with %:

3.580.329,00 (39.12 %)

Generic theme:

Reduction of emission of greenhouse gases

production site will be used to power the pilot plants. This will be especially critical for the lime pilot because of the limited amount of thermal energy available on the site. In order to limit the operational costs, water that is recovered when harvesting the algae will be recycled and re-injected upstream.

Expected results:

The expected outcome is the pilot scale validation of an innovative environment friendly CO₂ capture system combined with a biofuel production process. This system will:

- Reduce CO₂ emissions by capturing CO₂ using micro-algae;
- Produce biofuel from the algae to fuel the industrial furnaces and reduce fossil energy consumption; and
- Maximise the use of excess heat from the production process to reduce the energy needs of the installations.

Sustainable and integrated soil management to reduce environmental effects

Project background

The application of different types of animal manure is currently used to maintain, or increase, soil organic matter levels in Flanders (Belgium) and the Netherlands. Large-scale applications of animal manure, however, increase the risk of nutrient accumulation and losses, especially nitrate leaching and phosphate saturation and leaching. The agricultural sector needs practical know-how and tools to optimise both fertilisation and organic matter management.

Project objectives

The overall objective of the DEMETER project, in line with the Soil Framework Directive, is to foster sustainable soil and nutrient management. This includes guiding and informing farmers on management practices that consider both nutrient and soil organic matter management simultaneously. The project is centred on the principle that sustainable nutrient and soil organic matter management not only concern fertilisation practices, but the whole farm management, including tillage practices, crop rotation etc.

The project has four specific objectives:

- To increase awareness among all agricultural stakeholders of the benefits of sustainable soil and nutrient management, as well as of the risks of decreased soil organic matter content;
- To increase knowledge concerning the principles of sustainable nutrient and soil organic matter management in daily farm practices;
- To provide a practical tool to farmers that will support sustainable soil and nutrient management; and
- To enhance the implementation of sustainable soil and nutrient management in daily farm practices.

Expected results:

Overall, the project expects to attain a higher level of soil organic matter in Flemish and Dutch agricultural soils, coupled with a decreased nutrient load in the environment.

The following specific results are expected:

- An information package with practical recommendations for farmers concerning sustainable soil and nutrient management will be available one year after the start of the project;
- A decision-support tool for farmers will be online within one year of the project start date;
- The support tool will be used by 80 farms over the three years of the project;

LIFE10 ENV/BE/000699
DEMETER



Beneficiary:

Type of beneficiary

Regional authority

Name of beneficiary

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Patrick VERSTEGEN

Duration of project:

51 months (01/01/2012 - 30/03/2016)

Total budget in euro:

1,907,092.00

EC contribution in euro with %:

952,353.00 (49.96 %)

Generic theme:

Risk assessment - Pollution control

- The application of the principles of sustainable soil and nutrient management will enable the participating farms to lower nitrate residues;
- In the pilot areas, monitoring results will show a decrease in the nutrient load in ground and surface water;
- There will be at least one agro-environmental agreement aimed at sustainable soil and nutrient management;
- The information package will be updated, taking into account feedback from the farmers involved in the project;
- Farmers and relevant stakeholders will also be informed of the existence of the decision support tool and will take part in demonstration days on sustainable nutrient and soil management;
- Raised awareness among policymakers of the principles and benefits of sustainable soil and nutrient management, which will help with the implementation of the Soil Framework Directive.

Sustainable management via energy exploitation of end-of-life dairy products in Cyprus

Project background

The production of milk and dairy products in Cyprus and the rest of Europe has increased significantly during recent years and this has resulted in larger amounts of non-consumed, returned and expired products - and milk products in particular. Most of these end up in landfills contributing to hazardous leachate generation and uncontrolled gaseous emissions.

Landfilling of these products does not comply with the EU Landfill Directive (1999/31), which imposes strict limits for the disposal of biodegradable wastes. Thus, there is a clear need for the dairy industry to develop sustainable management and treatment strategies.

Anaerobic digestion of milk products and simultaneous methane recovery as a clean renewable energy source can be a highly sustainable solution for expired milk products with environmental, financial and social benefits. Although this process is state-of-the-art in the treatment of sewage sludge and industrial wastewater, very few applications can be found for the treatment of expired products themselves.

Project objectives

The DAIRIUS project's overall objective is to demonstrate an environmentally and financially sustainable solution for the management and treatment of returned Expired Dairy Products (EDP). It aims to achieve this through the development and testing of a two-phase anaerobic co-digestion process of EDP with other substrates.

The project will analyse the specific details of EDP generation by the dairy industry in Cyprus. It will assess the optimal physical, chemical and biochemical conditions for the anaerobic co-digestion process to maximise biogas yields. This will include determining the ratios of potential substrates, such as manure, in the process through investigations at laboratory scale.

A pilot anaerobic digestion plant will be designed and constructed; biogas from the process will be collected and used to generate energy. Running of the plant will permit further optimisations to the proposed process. The project will define the optimal plant operating conditions for EDP treatment to maximise biogas yields. It will also describe the best possible processes

LIFE10 ENV/CY/000721
DAIRIUS



Beneficiary:

Type of beneficiary

Large enterprise

Name of beneficiary

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Duration of project:

36 months (01/02/2012 - 31/01/2015)

Total budget in euro:

1,404,252.00

EC contribution in euro with %:

702,126.00 (50.00 %)

Generic theme:

Industrial waste (including manufacturing)

for aerobic composting or vermi-composting of the residual digested material.

A cost-benefit analysis, environmental impact assessment, and lifecycle analysis will be performed and used to evaluate the exploitation and long-term commercialisation potential of the prototype pilot plant. The process is expected to be of wide interest in the dairy sector.

Expected results:

- Clear demonstration of the wide-scale applicability and environmental benefits of anaerobic treatment of EDP;
- Successful generation, collection and use of biogas as a renewable energy product from EDP - as well as residual material for composting; and
- The definition of optimal conditions and technical specifications for the treatment process to maximise production of useful by-products.

Development of a national strategy for adaptation to climate change adverse impacts in Cyprus

Project background

Climate change has already had an impact on Cyprus, a relatively arid island of the Mediterranean region. In the 20th century, levels of precipitation fell at a rate of 1 mm per year, whilst the mean temperature increased by 0.5°C. The availability of water resources has fallen by 40% from the estimates made in 1970. Extreme climatic phenomena, especially droughts, are more frequent than before.

The changes to the climate of Cyprus have had an adverse impact on several sectors of the island's economy, social life and environment. The unsustainable depletion of groundwater caused by uncontrolled water pumping in many areas has led to sea intrusion into groundwater aquifers and to the deterioration of water quality that is pumped.

Climate change is only expected to further reduce precipitation and increase temperatures in the coming years. Agriculture and food security are expected to be threatened. The demand for water will increase with the increase in temperatures, particularly in agriculture. Growing dependence on air conditioning is likely to increase energy demand. Other human impacts are likely to include an increase in migration to urban areas away from untenable rural livelihoods and increases in heat-related health conditions, including heat stroke, tropical vector-borne diseases - such as malaria - and urban air pollution.

Project objectives

The CYPADAPT project's main objective is the development of a National Strategy for Adaptation to Climate Change in Cyprus with the aim of strengthening and increasing the adaptive capacity of the country. The project will use modelling to provide insight into the likely future impacts of climate change on Cyprus. It will work to identify economic and social sectors of Cyprus that are particularly vulnerable to climate change today and in the future. It will also seek to assess their adaptive capacity.

It will investigate adaptation measures applied worldwide for each sector and collate them into a database. To help identify which adaptation measures could be the most appropriate for the Cypriot situation, it will develop an innovative multi-criteria analysis (MCA) tool. It will demonstrate use of this tool and acquire valuable feedback to optimise its performance.

LIFE10 ENV/CY/000723
CYPADAPT



Beneficiary:

Type of beneficiary

National authority

Name of beneficiary

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Duration of project:

31 months (01/09/2011 - 31/03/2014)

Total budget in euro:

1,358,847.00

EC contribution in euro with %:

678,423.00 (49.93 %)

Generic theme:

Other area - Land use development and planning

To conclude, the project will use the MCA tool to inform the development of a national adaptation plan and then promote the implementation and dissemination of promising adaptation measures for climate change on Cyprus. It will also provide a methodology for monitoring the effectiveness of the proposed adaptation strategy.

Expected results:

- A technical description of climate changes models;
- An assessment of Cyprus's vulnerability to climate change now and in the future;
- An assessment of current adaptation measures;
- A database of adaptation measures applied worldwide;
- An MCA tool for selecting the most appropriate adaptation measures;
- National adaptation and monitoring plans for Cyprus; and
- Guidelines for the development of climate change adaptation plans.

Regional Sustainable Energy Policy based on the Interactive Map of Sources

Project background

The EU Renewables Directive sets targets for each Member State for the proportion of renewable energy generation by 2020. The Czech Republic's target is to achieve a 13% proportion of energy from renewable sources.

To date, the development of different types of renewable energy projects in the Czech Republic has been somewhat haphazard and unregulated. A new law is being prepared to address this. Moreover, the project team has identified 82 projects in the Czech Republic from 2005-2009 that it believes have been "wrongly assessed" i.e. have been located in unsuitable areas, inadequately prepared or shown wrongly working renewable energy sources.

Project objectives

The main objective of the ReStEP project is to develop, test, evaluate and distribute a new, standardised methodology for the management of urban and regional planning in the field of proposals and assessments of energy projects. The main focus is the efficient use of natural resources and environmental protection, so that the number of wrongly assessed renewable energy sources (RES) projects is reduced by 50%. The method uses an innovative software tool – an interactive map of conditions for renewable and alternative energy sources including biofuels.

Specific objectives are to:

- Develop a comprehensive methodology for the assessment of building and operating RES and biofuel production plants using an interactive map. The methodology will be included in new legislative and administrative processes and will include a guide for regional authorities;
- Create an innovative tool to aid decision-making on the use of natural resources for energy supply purposes. The aim is to establish the conditions for development of sustainable energy, while preserving biodiversity, food and energy safety, and also taking into account local conditions and environmental impacts; and
- Implement this new methodology, including the interactive map, and promote its use at regional level, including by towns and municipalities, to public administrations, business sectors and the wider public.

LIFE10 ENV/CZ/000649
ReStEP



Beneficiary:

Type of beneficiary

University

Name of beneficiary

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Pavel TLUSTOŠ

Duration of project:

36 months (01/11/2011 - 31/10/2014)

Total budget in euro:

1,538,534.00

EC contribution in euro with %:

769,134.00 (49.99 %)

Generic theme:

Reduction of emission of greenhouse gases

Expected results:

The main expected result is a reduction of 50% on 2005-09 levels of the number of wrongly assessed RES projects in the period 2015-2019. Other expected results include:

- A new methodology for the assessment of investment potential for energy sources (a guide issued by the Ministry of Environment and proposals for legislative amendments);
- An interactive map of the conditions for renewable and alternative energy sources (a software tool available to the public administration via websites, including a user- manual);
- Communication and educational activities for investors and operators of RES (workshops, courses including e-learning - 10 events in total); and
- At least 10 investment projects by the end of the project whose assessment will have made use of the methodology and/or the map – confirmed by the investor or public administration.

Innovative Methods of Monitoring of Diesel Engine Exhaust Toxicity in Real Urban Traffic

Project background

Diesel exhaust emitted by internal combustion engines is a key source of urban air pollution. It is not just the traditionally-regulated total mass of particulate matter that is of public concern, but also ultrafine particles of pollution. These can readily penetrate deep into the lungs and pass through cell membranes into the bloodstream. Engine exhaust has an adverse effect on many key bodily functions (respiratory, circulation and nervous system) and proximity to its source has been correlated with increased risk of tumours, asthma, various chronic respiratory ailments, heart attack, and other illnesses.

Project objectives

The MEDETOX project's main objective is to demonstrate innovative methods to assess the possible health risk connected with the exposure of the general public to diesel exhaust particles under real-life traffic conditions in the city of Prague. Diesel emissions from many thousands of trucks passing through large European cities represent serious health risks for the general public. In contrast to laboratory conditions, used in some previous and current studies, this project seeks to evaluate the toxicity of engine exhaust during operating conditions typical for core urban areas, where the engine emissions are of highest concern, as the aggregate dose is the highest.

Specific objectives are:

- To identify the health risks related to emerging fuels and fuel additives and to demonstrate the use of standardised toxicity tests as an appropriate tool for regulatory decisions; and
- To build an effective interdisciplinary network targeted at the overall assessment of the health risk potential of engine exhaust during real-time operation of road vehicles and mobile machinery, and the monitoring of the effects of various policy decisions. This will be accomplished by a team of experts in the areas of engines and emissions (TUL), toxicity assessment (IEM) and public policy (ME).

Expected results:

The main result will be a set of standardised protocols for the sampling and toxicity testing of diesel emissions under various real-life traffic conditions. These will be used as tools for 'hazard identification' and 'risk assessments' based on the toxic effects of vehicle emissions. The protocols will include standard methodologies for:

LIFE10 ENV/CZ/000651
MEDETOX



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Name of contact person

Jan TOPINKA

Duration of project:

60 months (01/09/2011 - 31/08/2016)

Total budget in euro:

1,223,524.00

EC contribution in euro with %:

611,762.00 (50.00 %)

Generic theme:

Air quality management and noise abatement

- Sampling of engine emissions, particularly diesel exhaust under various traffic conditions;
- Testing cell toxicity of organic extracts from diesel exhaust (OEDE) particles in human lung cells (HEL);
- Testing genotoxic potential of OEDE in a cell-free model system;
- Testing genotoxicity of OEDE in human lung cells (HEL);
- Testing oxidative damage caused by OEDE in HEL cells;
- Cytogenetic analysis in HEL cells exposed to OEDE.

The project will demonstrate the usefulness of these methodologies for environmental policy and governance in both the Czech Republic and the wider EU. Substantial efforts will be made to disseminate the results of the project to national authorities (e.g. the Czech environment and health ministries, the National Institute of Health, and the Czech Environmental Inspectorate) and to the international authorities and other potential end-users such as the OECD, CONCAWE and the International Energy Agency (IEA).

Plastic ZERO - Public Private Cooperation's for avoiding plastic as a waste

Project background

In recent decades, as the amount of plastic used in products, packaging and construction has increased, so the amount of plastic in waste streams has also risen.

Unfortunately, while plastics have many useful properties, they are very difficult to recycle as they come in many different types and they need to be separated into polymer types to ensure real recycling - upcycling. Most Member States collect either mixed plastic packaging or plastic bottles only, or they collect rigid and flexible plastic packaging separately. Either way, the plastic will still need to undergo some kind of sorting process if it is to be recycled into new, high-value products.

In Greater Copenhagen it is estimated that plastic waste constitutes some 15% of the residual waste destined for incineration. In Hamburg and Malmö this figure is around 8%, and in Riga roughly 20 % of the mixed/landfilled waste is plastic waste.

Project objectives

The objective of the Plastic ZERO project is to reduce the amount of plastic in waste streams, thereby saving non-renewable resources and enabling carbon neutral energy production from waste.

Specific objectives of the project include:

- The establishment of a road map for reducing plastic in waste streams;
- The demonstration and documentation of selected measures for the prevention of plastic waste;
- The demonstration and documentation of selected technologies and methods for sorting and recycling plastic waste;
- The development of initiatives to create new green businesses and growth within the recycling sector; and
- The dissemination of knowledge, good practices, technologies and systems to European cities.

Expected results:

- The establishment of an advisory board to assist with the road map development and project support;
- A digital road map and website;
- Identification and testing of at least 10 practical initiatives for plastic waste prevention;
- The establishment of cooperation forums for plastic waste prevention in at least eight value chains;

LIFE10 ENV/DK/000098
Plastic zero



Beneficiary:

Type of beneficiary

Local authority

Name of beneficiary

Municipality of Copenhagen -
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Name of contact person

Merete KRISTOFFERSEN

Duration of project:

36 months (01/09/2011 - 31/08/2014)

Total budget in euro:

1,997,308.00

EC contribution in euro with %:

998,571.00 (50.00 %)

Generic theme:

Packaging and plastic waste

- The establishment of networks in each partner city – Copenhagen, Hamburg, Malmö and Riga - focusing on plastic waste prevention;
- A manual for waste preventive Green Public Procurement (GPP);
- Identification of at least five effective collection schemes for plastic waste;
- Identification of at least five effective collection schemes and/or methodologies for implementation by project partners, demonstrating the potential for the removal of at least 25 % of plastic in the respective waste streams;
- The provision of guidance and consultancy to at least 150 manufacturing enterprises; and
- The practical testing and demonstration of at least four innovative technologies for plastic material recycling – with test reports and comparative assessments.

Odour and hazardous emission abatement of foundries

Project background

Foundries make metal castings from both ferrous and non-ferrous alloys. Metals are turned into components by melting the metal, pouring it into a mould, and then removing the mould material, or casting. The most commonly used metals are aluminium and cast iron, although steel, magnesium, copper, tin, zinc and other metals can also be used. Most foundries are operated by small- and medium-size enterprises (SMEs). There are some 4 000 ferrous and non-ferrous foundries in Europe with a combined workforce of around 290 000 employees.

The casting process typically leads to emissions of odorous and hazardous gases, which originate from the following:

- Melting shops, especially cupola furnaces but also induction furnaces;
- Moulding shops during the pouring and mould cooling stages;
- Core making, especially the 'hot box' system and core curing ovens;
- Sand reclamation; and
- Die casting (metal mould) of aluminium foundries.

Project objectives

The aim of the 'Odourless casting' project is to address the problems related to the air pollution control of odorous and hazardous emissions from foundry processes. The goal is to define odorous and hazardous emissions in typical aluminium, steel and iron foundries and to demonstrate technically and economically feasible emission abatement techniques for wide-scale implementation.

Specific objectives are to:

- Minimise hazardous and odorous emissions from different foundry processes by 80-90% at pilot foundries by applying the best feasible exhaust air cleaning systems;
- Define the most harmful compounds and odorous concentrations in iron, steel and metal foundries and treat them in the most efficient way;
- Define the odour emission balances of typical foundry processes and pilot foundries as a whole;
- Carry out feasibility studies as pilot tests for the foundries to minimise emissions using standardised chemical compound specifications and olfactometric analyses;
- Calculate total annual cost estimates for the full-scale technologies; and
- Publish a design and instruction guide on how to apply cleaning systems for different foundry processes.

LIFE10 ENV/FI/000059

Odourless casting



Beneficiary:

Type of beneficiary

Small and medium-sized enterprise

Name of beneficiary

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Name of contact person

Markku TAPOLA

Duration of project:

36 months (01/10/2011-30/09/2014)

Total budget in euro:

1,568,123.00

EC contribution in euro with %:

768,311.00 (49.00 %)

Generic theme:

Air quality management and noise abatement

Expected results:

- Reduce odour emissions by 80-90% (in comparison with the industry baseline) at the pilot foundries;
- Reduce the emission of 11 million kg noxious compounds in the European foundry industry;
- Create a healthier working environment for foundry workers and the people living in the vicinity of these emission sources;
- Provide information on potentially harmful odour emissions in ferrous and non-ferrous foundry processes;
- Produce data on the performance and cleaning efficiency of the tested abatement techniques in different odour-emitting foundry processes;
- Draw up a design and instruction guide on how to define and apply cleaning systems for odorous and hazardous emissions in different foundry processes; and
- Produce annual cost and energy consumption calculations for full-scale technologies.

Framework for Sustainable Management of Shooting Ranges

Project background

The problem of managing the environmental and health risks arising from environmental contamination at firing ranges is widely recognised. Firing practiced at outdoor small-arms ranges is creating heavily contaminated sites in Finland, as well as in many other countries. Along with the ammunition and clay targets, the activity emits several chemicals into the environment, e.g. heavy metals and metalloids (particularly lead, but also antimony, arsenic and zinc, among others) and polyaromatic hydrocarbons. Some of the potential contaminants (e.g. those present in the paints used in clay targets) have so far been largely unaddressed. Environmental contamination has arisen from insufficient risk management measures. Site studies have shown that the environmental load of ammunition can reach up to several millions of shot or several tonnes of lead per hectare at shotgun firing ranges covering several hectares.

Project objectives

The ARIT project aims to establish a management system (MS) for managing the environmental risks, including ecological and health risks, caused by Finnish firing ranges, both active and disused. The MS would extend from the local level to regional and national level, and its realisation would assume implementation of some policy actions and economic policy instruments presented and recommended by the project.

All firing ranges within the territory of the project will be prioritised using the Finnish KUPPI model. Risk assessment will be conducted for the prioritised sites in order to identify the magnitude, scale and targets of risk management actions. The most urgent site will be chosen for remediation. The results from the previous actions will be compiled and a management system constructed.

Expected results:

- Overview of the scale of the firing range problem in Finland, contaminants and risks involved;
- Outline of the risk management alternatives for active and disused firing ranges;
- Risk-based classification of firing ranges within the regions of South Ostrobothnia and South Savo;
- An MS for managing the environmental risks at macro- and micro-scale;

LIFE10 ENV/FI/000060
ARIT



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Name of contact person

Jaana SORVARI

Duration of project:

52 months (01/09/2011-31/12/2015)

Total budget in euro:

3,063,970.00

EC contribution in euro with %:

1,477,746.00 (48.23 %)

Generic theme:

Risk assessment - Pollution control

- Information on the suitability of the demonstrated novel technique for improving firing range soils;
- Information on the feasibility, cost-efficiency and attainable risk reduction of different remediation techniques for firing ranges, including the demonstrated novel remediation method;
- An estimate of the costs of risk management of disused firing ranges at national level;
- Recommendations for managing active and disused firing ranges at the regional and national level;
- Details of a funding system for remediating Finnish firing ranges; and
- Modified tools for assessing the risks and overall sustainability and cost-efficiency of alternative risk management methods at disused firing ranges.

Guidelines for Sustainable Exploitation of Aggregate Resources in Areas with Elevated Arsenic Concentrations

Project background

Aggregate production is one of the largest industry sectors in Finland. Every year, approximately 120 million tonnes of raw materials are extracted from the ground, to be processed and used for construction and infrastructural maintenance. The annual aggregate consumption per capita in Finland is among the highest of all EU countries. Many of these natural resources are situated in regions with an elevated groundwater risk, and thus regulated by environmental permits or the land extraction act. In addition, aggregate production may cause a risk in areas with high natural concentrations of arsenic in bedrock and soil. At present, there are no restrictions on the use of natural rock aggregates or soil originating from non-contaminated areas in civil engineering. However, in the Tampere region in southern Finland, extracted rock aggregates may contain high concentrations of arsenopyrite (FeAsS) and high arsenic concentrations have also been detected, particularly in deeper layers of glacial till. The presence of arsenic sulphides in rock leads to a deterioration in the quality of construction material and it can also become a source of contamination.

Project objectives

The main objective of the ASROCKS project is to provide guidelines for the exploitation of natural aggregate resources (crushed bedrock, sand and gravel) in an area with elevated arsenic concentrations in bedrock and soil. In addition, guidelines will be developed for the re-use of aggregates in construction sites in areas with a high natural occurrence of arsenic. The demonstration area is the Tampere-Häme region in southern Finland, where natural arsenic (As) in bedrock and soil is known to be a problem.

Specific objectives are to:

- Identify the current aggregate production areas and planned large construction sites with potential for arsenic hazards;
- Identify the environmental impacts at demonstration sites. Potential pathways to surface and groundwater will be investigated in sites that show elevated concentration of As. Worst-case scenarios will be defined for the selected sites;
- Develop a risk assessment and risk management procedure at the demonstration sites. The main aim is to develop a decision support model for the aggregate production and application in construction sites in areas with a high natural occurrence of arsenic.

LIFE10 ENV/FI/000062
ASROCKS



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

Geological Survey of Finland

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Name of contact person

Kirsti LOUKOLA-RUSKEENIEMI

Duration of project:

36 months (01/09/2011 - 31/08/2014)

Total budget in euro:

1,157,301.00

EC contribution in euro with %:

578,671.00 (50.00 %)

Generic theme:

Risk assessment - Pollution control

Expected results:

- A map of areas with elevated natural concentrations of arsenic in bedrock and soil in the Tampere-Häme region;
- A list of production sites of aggregates and planned large construction sites in the area with elevated arsenic concentrations;
- A description of selected aggregate production sites and a qualitative risk assessment model;
- A conceptual model for qualitative risk assessment;
- Results of leaching experiments of selected aggregate materials;
- Risk management tools for sustainable exploitation of aggregate resources in areas with elevated arsenic concentrations;
- A decision support model of sustainable exploitation to support environmental authorities; and
- Guidelines for the sustainable exploitation of aggregate resources in areas with naturally elevated concentrations of arsenic in soil and/or bedrock.

Knowledge based data services - improving the life cycle and accessibility of environmental data provided for public interest

Project background

In 2006, FOREST EUROPE (The Ministerial Conference on the Protection of Forests in Europe) and the Council for Pan-European Biological and Landscape Diversity Strategy (PEBLDS) jointly recognised sustainable forest management to be consistent with the Ecosystem Approach.

Finland is the EU's most forested country – three quarters of its land area is under forest cover – which highlights the important role of Finland in contributing to sustainable forest management and the ecosystem approach – promoting conservation and environmentally, socially and economically sustainable forest management practices, providing benefits for both present and future generations.

Project objectives

The LifeData project aims to identify and demonstrate new management methods and user-application systems for generating an integrated data management process. The project will develop and demonstrate a unique database system linking integrated forest databases with those of other participating (LYNET) organisations. The data collected will be used to bridge the gap between data/information producers and users, enabling simple access to this integrated information.

Specifically the project will:

- Complete and integrate the data of the participating (LYNET) organisations and create a service map;
- Identify the data architecture upon which new databases will be built;
- Build data search systems and user-interface services.

Expected results:

- A service map and data policy for the participating organisations, including guidelines for the demonstration project;
- Data sets of the organisations will be identified, with general and detailed descriptions;
- Variables defining the data will be identified and standardised for the databases;
- The architecture of data sets and their links to each other will be described so that the new databases and their interfaces and user interfaces can be built or rationalised (updated easily);

LIFE10 ENV/FI/000063

LifeData



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

Finnish Forest Research Institute

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Name of contact person

Anu KANTOLA

Duration of project:

52 months (01/09/2011 - 31/12/2015)

Total budget in euro:

2,906,601.00

EC contribution in euro with %:

1,351,498.00 (46.51 %)

Generic theme:

Forest management - Soil and landscape protection - Desertification prevention

- The databases and user interface services that will be tested, demonstrated and recorded.

Industrial Platform Demonstrator to achieve 95% recycling of the “end-of-life vehicle”

Project background

European Directive 2000/53/CE related to end-of-life vehicles (ELVs) requires Member States to achieve a reuse and recovery rate of 95% for all ELVs by average weight by 2015. The countries must implement national legislation and tools to ensure that economic operators involved in ELV collection and treatment meet this target.

However, despite significant efforts by European car constructors and other stakeholders, the highest ratio achieved is still only 91%. Non-ferrous metals, plastics, glass, foams and textiles make up around 21-26% of an ELV by weight and are thus an important target area for recycling efforts.

Project objectives

The LIFE project ICARRE 95 aims to demonstrate how to recycle 95% of ELVs at a regional scale - up to 30 000 ELVs per year - and to create a model that can be applied and transferred to other sites in France and elsewhere in Europe.

To reach its objective, the project will concentrate its efforts on plastics, foams, glass, textiles and catalytic converters. After firstly outlining an effective process for dismantling the various parts of the recovered car, the beneficiary aims to develop a cradle-to-cradle process for recycling of non-ferrous metals, plastics, glass, foams and textiles. Such a process identifies and separates 'technical' materials that easily can be reused or recycled in a continuous cycle without losing their integrity and 'biological' materials that will biodegrade and must therefore be disposed of appropriately, for example through composting.

One of the major uses foreseen for some of the recovered 'technical' materials are as second-hand components for use in car repairs or new builds. The beneficiary aims to nearly double the amount of recycled materials it uses in its car production within 3-5 years. It will also create a label for the parts, in order to facilitate a market and allow their sale through the company.

In addition, the project will create an alternative supply-chain platform using waterways and railways to guarantee the supply of ELV volumes, second hand com-

LIFE10 ENV/FR/000202
ICARRE 95



Beneficiary:

Type of beneficiary

Large enterprise

Name of beneficiary

Renault SAS

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Name of contact person

Tony GALLONE

Duration of project:

40 months (01/09/2011 - 01/01/2015)

Total budget in euro:

30,286,899.00

EC contribution in euro with %:

5,545,570.00 (18.31 %)

Generic theme:

End-of-Life Vehicles (ELV's) and tyres

ponents and raw materials in and out of the project. Finally, it will create an ICARRE 95 Scientific Committee consisting of representatives of associate industries and academic institutions. This will examine new opportunities for developing green skills and know-how.

Expected results:

- Treatment of 30 000 ELVs/yr;
- Contribute to the achievement of 95% recycling of ELVs by weight;
- 15-20% of the weight of an ELV to be reused as second-hand components;
- An increase in recycled materials used in car production by Renault from some 27 000 tonnes/yr to more than 50 000 tonnes/yr within 3-5 years; and
- Savings of up to 11 600 tonnes/yr of CO₂, 18 000 tonnes/yr of metals, 5 000 tonnes/yr of plastics, 3 000 tonnes/yr of glass and 250 tonnes/yr of catalytic converters.

An innovative and sustainable plan for managing public lighting and combatting light pollution in Le Mans Métropole

Project background

The intensification in the amount of public lighting in the past few decades has led to the emergence of the notion of light pollution. Public lighting also consumes significant amounts of energy. This is not only an economic cost for local authorities, but also contributes importantly to the greenhouse effect, because it generates approximately 110 g of CO₂ per kWh consumed. Furthermore, ADEME (the French Agency for the Environment and Energy Management) estimates that 30% to 50% of the light from public lighting in France is pointlessly wasted. This represents 4% of greenhouse gas emissions in France and almost 50% of municipalities' energy costs.

In 2009, Le Mans Métropole began the implementation of a Local Agenda 21 sustainable development project that incorporates a carbon inventory to allow the measurement of greenhouse gas emissions in the area over a long period. An internal diagnosis of the impact of public lighting was conducted providing a baseline figure for its environmental impact.

Project objectives

The URBAN LIGHT PLAN project aims to simultaneously reduce greenhouse gas emissions and light pollution from public lighting in Le Mans. Its goal is to provide important economic benefits to the local authorities as well as reducing the area's ecological footprint and provide an example of good practice in the management of public lighting to other agglomerations in France and Europe.

The project intends to introduce more appropriate and 'soft' lighting, particularly seeking to replace lighting that does not currently meet the requirements of Energy Efficiency Certificates. It will also work to introduce more intelligent planning of lighting systems, not only significantly reducing the number of light points, but seeing lights switched off when not needed.

The beneficiary will adopt public procurement procedures that will select public lighting providers that specify the use of systems that meet environmental and ethical criteria, including energy efficiency and the use of recyclable materials.

As well as reducing energy consumption and associated environmental impact, the planned actions are expected to provide a more environmentally friendly lighting environment, which should notably prevent disturbance of the behaviour patterns of fauna.

LIFE10 ENV/FR/000207
URBAN LIGHT PLAN



Beneficiary:

Type of beneficiary

Local authority

Name of beneficiary

Communauté Urbaine
Le Mans Métropole

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Name of contact person

Jean-Claude BOULARD

Duration of project:

61 months (01/09/2011 - 30/09/2016)

Total budget in euro:

5,167,551.00

EC contribution in euro with %:

1,146,276.00 (22.18 %)

Generic theme:

Reduction of emission of greenhouse gases

At the same time, it is essential that public lighting continues to meet the safety and visual needs of citizens. Engaging the public and business communities around identifying where light savings can be made will be crucial to the success of the project. It will work to raise awareness of the problems associated with lighting nuisances and encourage a more judicious use of light.

Expected results:

- Replacement of almost 65% of the 28 000 light sources in the project's territory;
- A reduction of 683 tonnes/yr of CO₂ emissions;
- A 40% reduction in Le Mans Métropole's energy costs and a reduction of its ecological footprint;
- A reduction in light pollution with associated benefits for sensitive local ecosystems; and
- Continued adequacy of lighting for citizens' visual and security needs.

Ozone and Climate Change

Impacts on French and Italian Forests: Refinement of criteria and thresholds for forest protection

Project background

Ozone (O₃) is a secondary pollutant that is produced during the atmospheric photo-oxidation of volatile organic compounds (VOCs) in the presence of NO_x. Ozone acts as a powerful greenhouse gas (GHG) in the free troposphere. Recent studies show an increasing impact of ozone concentrations on ecosystems and forests. The absorption of ozone molecules by plants causes necrosed parts on leaves, acts on transpiration and stomatal opening and reduces the rate of photosynthetic activity. After an exposure of some hours, ambient ozone concentrations begin to affect crop productivity. Studies have shown that foliar symptoms are the result of the amount of ozone going into the foliage rather than the amount of ozone present in the air.

Project objectives

The main objective of the project is to refine the criteria and establish validated thresholds for forest protection against ozone and climate change. By comparing measured and modelled canopy-level stomatal fluxes, FO3REST will provide knowledge for updating the current Deposition of Ozone and Stomatal Exchange (DO3SE) model for calculating ozone flux and for including plant defence in the model for European beech and Aleppo pine. The project will propose new standards, based on the quantity of ozone absorbed by plants as opposed to external exposure, implicit in the AOT40 index.

The project activities, which will be carried out at French and Italian experimental plots, should allow the beneficiaries to:

- Collect quantitative and qualitative forest data related to climate change, air pollution, forest condition and biodiversity;
- Contribute information required for sustainable forest management;
- Estimate potential impacts of climate change, including opportunities;
- Increase awareness among communities and public decision-makers; and
- Gain a better understanding of air pollution and climate change at forest sites and their effects on forest ecosystems.

LIFE10 ENV/FR/000208
FO3REST



Beneficiary:

Type of beneficiary

Small and medium-sized enterprise

Name of beneficiary

ACRI-ST SAS

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Name of contact person

Pierre SICARD

Duration of project:

40 months (01/09/2011 - 31/12/2014)

Total budget in euro:

1,322,339.00

EC contribution in euro with %:

658,063.00 (49.77 %)

Generic theme:

Risk assessment - Pollution control

Expected results:

- The validation of the stomatal flux model;
- Insights for a new and more effective forest monitoring system, with refined criteria and thresholds for the protection of forests against ozone and climate change;
- Harmonised and validated policy relevant data related to forest condition, biodiversity, climate change and air pollution;
- A platform for other projects providing information on climate change, biodiversity and air pollution;
- Provision of data related to the improved pan-European Indicators for Sustainable Forest Management, which will help to establish lists of sensitive tree species for forest management adaptation; and
- Transfer of the technique to similar geographical areas after-LIFE, in order to apply and validate index thresholds and standards.

HARMONised Noise Information for Citizens and Authorities

Project background

Noise generated by human activities is a very noticeable environmental nuisance, especially in urban areas where population concentrations are highest. According to the European Commission's 1996 Green Paper on Future Noise Policy (COM(96) 540) around 20% of EU citizens - i.e. 80 million people - were suffering from noise levels that were considered as unacceptable by scientists and health experts.

With the enlargement of the European Union, nearly 100 million people are now exposed to noise levels considered as dangerous to their health. These nuisances are caused by transportation infrastructure, industrial activities and various hobbies.

The Paris Regional council responded to the requests of environmental associations to address the issue of noise pollution and established a noise observatory for the city in 2004. BRUITPARIF is a non-profit organisation that aims to meet the legitimate expectations of Île-de-France inhabitants to get reliable information on the noise levels to which they are exposed.

Project objectives

The HARMONICA project aims to show how an innovative, easy-to-understand, common noise index can contribute to efforts to tackle noise pollution. It seeks to combine as much noise information as possible into one portal to provide a harmonised framework for monitoring and evaluating noise pollution and the measures to reduce it.

The project will harmonise the technical aspects of the use of noise monitoring systems and strategic noise maps and create a noise index based on the combination of information from these tools. This seeks to provide a comprehensive vision of noise pollution in the project areas and enable the comparison of situations in different territories.

It will create a database of noise abatement actions, which will be published along with the noise pollution index on an interactive platform. This innovative tool should allow all the relevant information to be made available in an easy-to-understand way and to facilitate the evaluation of the impact of noise abatement actions. The tool will be assessed by the general public and public authorities and optimised before dissemination.

LIFE10 ENV/FR/000211
HARMONICA



Beneficiary:

Type of beneficiary

NGO-Foundation

Name of beneficiary

BRUITPARIF

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Name of contact person

Fanny MIETLICKI

Duration of project:

36 months (01/10/2011 - 30/09/2014)

Total budget in euro:

1,733,609.00

EC contribution in euro with %:

866,804.00 (50.00 %)

Generic theme:

Air quality management and noise abatement

The improved access to information on noise pollution and abatement initiatives should increase assimilation of the environmental noise issue by the general public and public authorities in the project areas. It should also facilitate the transfer of information between additional European agglomerations, who it is hoped will join the platform in the future. This expansion will be supported by a methodological guide to noise policies and the HARMONICA noise index.

Expected results:

- An easy-to-understand and publicly available noise pollution index;
- Comparison of noise pollution situations in different areas;
- Use of the system to inform noise abatement decisions; and
- Use of the system by additional agglomerations.

R-URBAN / Participative strategy of development, practices and networks of local resilience for European cities

Project background

There are increasing calls for collective action in European urban areas to confront common challenges such as: global warming; the depletion of fossil fuels and other natural resources; recession; population changes; housing and employment crises; and current and potential social divides and geo-political conflicts.

The active involvement of citizens is crucial to the establishment of alternative models of production and consumption based on closed local cycles and sustainability.

To stimulate this commitment to more ecological lifestyles, we need tools, knowledge and places to test new practices and bottom-up initiatives and to showcase the results and benefits of a resilient transformation of a city.

Project objectives

The R-URBAN project aims to demonstrate that networks of active citizens and associations can create alternative models of production and consumption through accelerated introduction of sustainable collective environmental practices that respond to the needs of modern cities in all of their social, cultural economic and environmental dimensions. It will implement a participative strategy to increase the ecological resilience of the town of Colombes - 83 000 inhabitants - in the north-western suburb of Paris (92).

R-Urban proposes the retrofitting of the city following the principles of: recycle, reuse, repair, re-think. It will identify existing micro-local good practices by individuals or associations in sustainable activity. It will also map available or underused spaces in the urban environment. Through the promotion of bottom-up initiatives, the project will seek to immediately connect and activate these potentials. It will identify and encourage local skills and the transfer of these skills as well as experimenting with locally closed cycles for energy, water and waste.

It will establish networks to facilitate co-ordinated actions at domestic, neighbourhood, city, and regional scales to close chains of supply and consumption as locally as possible in five fields of activity: residential; economic; agriculture; culture; and mobility. The project particularly hopes to see initiatives around the development of co-operative ecological housing, organic urban agriculture, local cultural production and fossil-fuel-free transport alternatives.

LIFE10 ENV/FR/000215
R-URBAN



Beneficiary:

Type of beneficiary

NGO-Foundation

Name of beneficiary

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Constantin PETCOU

Duration of project:

49 months (01/09/2011 - 30/09/2015)

Total budget in euro:

1,312,500.00

EC contribution in euro with %:

630,000.00 (48.00 %)

Generic theme:

Urban design - Quality of life - Transport planning

The project ultimately expects to deliver social, environmental and economic benefits in sustainable ways that respect local cultures and traditions. It will ensure that all land-use changes are reversible, whilst developing actions that make more positive use of available spaces.

Expected results:

- Demonstration of accelerated collective environmental governance strategies at local and regional level;
- Engagement of at least 15% of the population of Colombes in new sustainable collective environmental practices;
- A 40% reduction in the environmental footprint of the created or converted urban facilities;
- Recycling and reuse of more than 75% of waste from project activities; and
- A 'practical' urban resilience charter and a centre to disseminate good practices of urban resilience at regional and European levels.

Sustainable biomass production, processing and demonstration of alternative cropping and energy systems

Project background

The Convention on Biological Diversity (CBD) defined three main objectives in relation to the protection and exploitation of biodiversity: the conservation of biological diversity; the sustainable use of its components; and the fair and equitable sharing of the benefits from the use of genetic resources. Europe's response to the CBD included the Landscape Diversity Strategy in 1995 (PE-BLDS) and the EC Biodiversity Conservation Strategy (ECBS) in 1998.

Agriculture presents both threats and opportunities for biodiversity, as well as being dependent on the state of biodiversity. Optimising agricultural systems is an important way to "manage natural resources more responsibly to protect and restore habitats and natural systems and halt the loss of biodiversity", as defined in the EU Strategy for Sustainable Development (2001). With the establishment of the renewable energy law (EEG) in Germany, the amount of electricity being generated from biomass is rapidly increasing. However, the parallel increase of mono-cultures with related problems such as pest damage, landscape changes, exploitation of soils, and contamination of soil and groundwater, make alternative cropping and energy systems necessary.

Project objectives

This project will investigate a new approach for converting digests from biogas plants and biowaste into biochar. At the same time, the possible impacts on crop growth, cropping systems, carbon sequestration and carbon credits will be investigated. The main emphasis will be on demonstrating on a pilot scale a new carbonisation technology (BSP) for the conversion of different sources of waste and digests. This will then be put back into the biomass cropping systems and/or used for energy purposes.

The project will also assess the influence that crop management has on the overall biogas yield and the economic and environmental impacts (including the impact on biodiversity) of the different crops. The project will screen multiple feedstocks of biowaste and alternative biomass production systems for large-scale production of biomass that does not compete with food production, and which also solves environmental hazards of waste disposal in natural eco-systems. Examples include: marginal land resources such as riparian and roadway buffer strips; brownfield sites; crops from wastewater treatment by phytoremediation (water hyacinth, channel grass); and different sources of biowaste for biogas production.

LIFE10 ENV/DE/000126
AlternativeBiomass4Energy



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Christoph KONRAD

Duration of project:

60 months (01/09/2011-31/08/2016)

Total budget in euro:

4,843,904.00

EC contribution in euro with %:

2,403,661.00 (49.62 %)

Generic theme:

General: Waste management

Expected results:

- The definition of optimal biomass mixtures for biogas production;
- A technical demonstration for a mobile carbonisation pilot plant able to convert 30 kg/h;
- An all-purpose energy-yield software tool for assessing alternative cultivation methods. Integrating GIS components, this will allow for the spatial modelling of defined scenarios and the visualisation of regional bioenergy concepts;
- A lifecycle impact and techno-economical assessment of the different scenarios tested;
- Identification of the ideal combination of crops, cropping systems and waste sources;
- An assessment of alternative CO₂ sequestration possibilities using biochar; and
- Regional bioenergy concepts, modelling the bioenergy potential of non-woody biomass and the projected heat demand.

Hamburg Water Cycle - Jenfelder Au

Project background

Centralised energy and wastewater systems currently do not allow energy generation from sewage and in contrast, require considerable energy for the treatment of the black, grey and rain water streams.

The HWC - Jenfelder Au project is part of a new 35 ha real estate development, comprising some 700 apartments, of which 570 will take part in the project. These apartments will be fitted with water-saving vacuum sanitation technology and separate wastewater collection, drainage and treatment systems. The black water stream will be used for energy generation. The grey and storm water streams will be treated separately using a new and simplified approach.

Project objectives

The project's overall objective is to demonstrate the technical, environmental and economic feasibility of an integrated and decentralised wastewater disposal and energy generation system for an urban housing district in Hamburg, Germany. The concept will bring together well-known technologies, as well as new and innovative prototypes – to be demonstrated for the first time on a large-scale. The system will be developed in different phases, in accordance with the different phases of construction.

Specific objectives are to:

- Demonstrate an integrated wastewater disposal and energy generation system;
- Minimise the dilution of sewage with drinking water (flush) by the use of vacuum toilets within an urban district;
- Promote water quality, i.e. preventing rain and grey water from being polluted with black water;
- Save energy by systematically treating and utilising separated wastewater streams. This will be done by preventing energy consuming wastewater processing;
- Demonstrate an innovative decentralised energy generation concept based on a biogas plant and a combined heat and power plant, in combination with solar and geothermal plants. The concept will demonstrate the potential to minimise the use of non-renewable energy sources and the potential for energy generation based on separation of black water; and

LIFE10 ENV/DE/000158
HWC - Jenfelder Au



Beneficiary:

Type of beneficiary

Public enterprise

Name of beneficiary

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Kim AUGUSTIN

Duration of project:

60 months (01/09/2011 - 31/08/2016)

Total budget in euro:

16,746,974.00

EC contribution in euro with %:

3,446,821.00 (20.58 %)

Generic theme:

Waste water treatment

- Prepare for future phosphorus and nitrogen recovery and effective elimination of micro pollutants such as pharmaceuticals.

Expected results:

The main expected result will be an innovative urban wastewater and energy system comprising:

- Approximately 1 000 vacuum toilets, and a vacuum pipe system, reducing water consumption by 7.3 m³/year per person, by vacuum toilet;
- A biogas combined heat and power generation plant, generating approximately 800 kWh/year per person; and
- A geothermal power plant generating some 1 000 kWh/year per person;

Overall, the target district will save around 500 tonnes/year of CO₂ equivalents and will be self-sufficient in terms of wastewater treatment and heat supply. It will produce some 50% of its electricity demand locally.

Best practices for agricultural wastes treatment and reuse in the Mediterranean countries

Project background

Intensive crop production often results in excessive use of fertilisers and water. Apart from the high production costs and waste of resources, such practices can cause serious environmental problems, including an increased risk of desertification, degradation of soil, water pollution through leaching of excess nutrients and reduced soil biodiversity. Most of these impacts are already evident in southern Europe, where a significant percentage of cultivated land suffers from the effects of desertification. The use of innovative lower impact systems could not only save resources, it could also improve the local and regional economy, whilst protecting the environment.

Project objectives

The WASTEREUSE project aims to address two significant environmental problems: the uncontrolled disposal of agricultural waste (olive oil mill waste and winery waste) and the excess use of nutrients and natural resources (water, phosphoric minerals used for fertilisers).

The project will attempt to increase the recycling of nutrients and water with the sustainable use of treated (or potentially untreated) agricultural waste (AW), and to combine developed technologies in integrated methodologies for the sustainable recycling of waste nutrients and water in agriculture.

Expected results:

The project will compile an inventory of all available technologies for AW treatment, as well as an inventory of agricultural practices using treated AW, for the most common cultivated and water demanding crops in the Mediterranean. It will analyse the wastes treated by different technologies to assess their suitability for agricultural use under open field and greenhouse conditions.

New alternative cultivation methods that use treated or untreated AW will be developed and their effects on soil quality will be examined. A report on soil quality protection by the sustainable use of treated agricultural wastes in crop cultivation will be produced. A code of waste management practices for agricultural application will be developed. The project will also propose a set of measures and actions that should be taken by national policymakers in the Mediterranean

LIFE10 ENV/GR/000594
WASTEREUSE



Beneficiary:

Type of beneficiary

University

Name of beneficiary

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Name of contact person

Konstantinos KOMNITSAS

Duration of project:

48 months (01/09/2011 - 31/08/2015)

Total budget in euro:

1,384,799.00

EC contribution in euro with %:

679,399.00 (49.06 %)

Generic theme:

Agricultural waste

to conform to European legislation requirements, as well as legislative recommendations for AW reuse policy. In addition, a legislative framework for the use of treated wastes in water and nutrient management in the Mediterranean, will be developed and proposed. LCA studies will be conducted for the main crops using the most feasible AW treatment options.

The project will help to improve knowledge of waste management impacts on soil nutrient availability as well as the excess deposition of inorganic and organic compounds. It will enable a reduction of the carbon footprint of the agricultural sector by recycling AW and minimising the use of fertilisers; conservation of natural resources by averting excessive use and uncontrolled waste disposal; and increased competitiveness of Mediterranean agricultural products and improved profit margins through the reduction of external inputs.

The condense managing system: production of novel fertilisers from manure and olive mill wastewater

Project background

Modern agricultural practice is largely based on the use of chemical fertilisers. In the past 10 to 15 years, the carbon footprint of fertilisers and their contribution to climate change has become an issue. For example, the capture of a tonne of nitrogen from the air and its conversion into a fertiliser requires at least one tonne of diesel or an equivalent amount of other fuels of similar energy potential. If the energy required for transporting and applying the fertiliser is also included, then the overall carbon footprint is increased considerably.

A methodology with a reduced carbon footprint is therefore required for providing nitrogen to plants. The same is true for phosphorus and potassium, since the carbon footprint of these fertilisers is also very high – estimated to be 25% larger than that of nitrogen.

Project objectives

The CONDENSE project will demonstrate a manure and olive mill wastewater (OMW) management system, which transforms these wastes into a nutrient-rich end product that can be safely used in agriculture and horticulture, instead of inorganic chemical fertilisation. This method will condense the nutrients found in these two wastes on a scale and in a way that will result in a new product with a high concentration of nitrogen, phosphorus and potassium, mostly in an inorganic form, but originating solely from organic wastes. Technical, logistical, financial, environmental and operational issues must be solved prior to a full-scale operation.

Carefully designed and coordinated activities will aim to increase acceptance and expansion of the CONDENSE management system.

Expected results:

- A tested, evaluated and fine tuned management system that will allow for the use of manure and OMW to produce a new, easy-to-use product, with a high concentration of nitrogen, phosphorus and potassium, with very good availability (inorganic form), and that is safe and beneficial for agricultural and horticultural applications. The test system will be able to manage – at demonstration scale – about 100 to 200 tonnes of manure and 500 to 1 000 m³ of OMW annually;

LIFE10 ENV/GR/000596
CONDENSE



Beneficiary:

Type of beneficiary
Development agency

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Vassilis ATHANASOPOULOS

Duration of project:

40 months (01/09/2011 - 31/12/2014)

Total budget in euro:

2,354,923.00

EC contribution in euro with %:

1,014,461.00 (43.08 %)

Generic theme:

Agricultural waste

- A complete pilot plant that will allow for the testing, evaluation and fine tuning of the management system. The pilot plant will have a capacity of 5-10 tonnes/yr of the new product;
- A detailed agricultural and horticultural evaluation of the new product, both in relation to the various crops grown in southern and northern Europe, but also in terms of its compatibility with existing fertiliser application methods and tools, and moreover, compatibility with farmers practices. It will include more than 10 different crops (vegetables, strawberries, potatoes, corn, olive tree etc), in more than 50 controlled and uncontrolled trials in two different areas in Greece and one in the UK;
- A Life Cycle Analysis, a cost-benefit analysis and a technical-economical evaluation; and
- A series of manuals, incorporating all the knowledge and experience of the CONDENSE project that will allow for a rapid expansion of the process. All manuals will be freely available to the public.

Chromium in Asopos groundwater system: remediation technologies and measures

Project background

In Greece, groundwater systems are threatened by a combination of excessive abstraction and chemical pollution. The Asopos river basin, which is located in the Region of Sterea Ellada, and the 'River Basin District of East Sterea Ellada' (RBD07), constitutes one of the most threatened water bodies in the country. The groundwater system of Asopos contains high concentrations of trivalent chromium (CrIII) and hexavalent chromium (CrVI), which can reach levels of up to 100 microns/l. This has, understandably, caused increased public concern, particularly since part of the groundwater is abstracted for human consumption and irrigation purposes.

Project objectives

The aim of the project is to establish threshold values (TVs) for chromium in the Asopos river basin and to address delays in the implementation of the Groundwater Directive (GWD). Innovative technologies and methods will be applied to estimate the natural background levels of chromium in the Asopos river basin and appropriate remediation technologies will be then tested and evaluated.

Specific objectives of the project are to:

- Evaluate the properties of the soil and the groundwater and assess their contribution to the potentially high natural background levels (NBL) of CrVI;
- Evaluate the effect of high NBL of CrIII and CrVI on the determination of appropriate TVs;
- Develop a widely applicable and rational methodology for the determination of TVs, in accordance with the guidelines of Annex II of the GWD;
- Identify relevant polluting activities in the area and estimate the generated loads and their effective transport until they enter the aquatic environment;
- Demonstrate different technologies for the remediation of groundwater bodies with high concentrations of CrIII and CrVI;
- Establish a programme of measures for the Asopos river basin, which will include the implementation of the most efficient chromium removal technologies as well as supplementary administrative and legal instruments. Achieve a stakeholder agreement on water resources management and protection;
- Exploit European best practices and know-how on water resources management, with particular emphasis on the implementation of the GWD.

LIFE10 ENV/GR/000601
CHARM



Beneficiary:

Type of beneficiary

University

Name of beneficiary

National Technical University of Athens

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Name of contact person

Daniel MAMAIIS

Duration of project:

48 months (01/09/2011 - 31/08/2015)

Total budget in euro:

2,708,267.00

EC contribution in euro with %:

1,337,679.00 (49.39 %)

Generic theme:

Site rehabilitation - Decontamination

Expected results

- A methodology for the determination of TVs for chromium compounds in groundwater bodies will be developed, in support of the Water Framework Directive 2000/60/EC and the Groundwater Directive 2006/118/EC;
- The improvement and rational management of water resources in the Asopos river basin and in the relevant groundwater body;
- Determination of NBL and TVs for chromium and hexavalent chromium for the groundwater system of Asopos;
- Quantification of chromium and hexavalent chromium removal efficiency using different remediation technologies;
- Adaptation of the PoM and determination of the effectiveness of the proposed measures on groundwater flow field and the chromium contaminant plumes, as well as the determination of the effects of climate changes on groundwater flow field and the chromium contaminant plumes;

Integrated management of bio-waste in Greece – the case study of Athens

Project background

Mixed waste in Athens, as elsewhere in Greece, is collected by local authorities in cooperation with the Hellenic Recovery Recycling Corporation. The collected waste is either landfilled or subject to treatment in a mechanical biological treatment (MBT) plant. Athens has only one MBT plant, which handles approximately 20% of the entire waste produced in the Greater Athens area, producing low quality compost.

The EU Landfill Directive binds Greece to the reduction of biodegradable waste sent to landfill to 35% of 1995 levels by 2020. However, no infrastructure for the separation at source and collection of biowaste exists in Greece, although separate collection of organic waste is promoted in all Regional Waste Management Plans and numerous biological treatment projects are in the planning stage.

Project objectives

The 'Athens-Bio-waste' project aims to establish and promote sustainable biowaste management in Greece using the municipalities of Athens and Kifissia as case study areas. Two separate collection systems will be launched and collected material will be composted. An innovative software tool will evaluate the chain of biowaste management through lifecycle thinking in order to disseminate and evaluate the benefits of sustainable biowaste management in terms of greenhouse gas emissions. The quality of the produced compost will be assessed through laboratory analysis to ensure it meets European standards, and a compost quality model will be created to correlate compost quality to parameters such as biowaste composition and collection method. The project will also develop a market for compost.

The project will seek to raise awareness among citizens and other stakeholders regarding management of biowaste. A practical guide to biowaste management for local authorities will be produced. Gaps in Greek policy and legislation related to biowaste will be identified and recommendations for the technical specification on waste management and other legislative issues will be drafted.

Expected results:

- The project will examine and evaluate 70% of all biowaste separate collection methods in use in the EU;

LIFE10 ENV/GR/000605
Athens-Bio-waste



Beneficiary:

Type of beneficiary

University

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Name of contact person

Maria LOIZIDOU

Duration of project:

40 months (01/09/2011 - 31/12/2014)

Total budget in euro:

1,339,930.00

EC contribution in euro with %:

638,715.00 (47.67 %)

Generic theme:

Municipal waste (including household and commercial)

- The project will identify at least five biowaste parameters that will be used to design future biological treatment plants in Athens and elsewhere in Greece;
- An LCA-based bio-waste management software tool will be developed;
- A compost quality correlation model will be developed;
- The project will establish two pilot schemes for the separate collection of biowaste by residents;
- At least 6 000 inhabitants will participate in the scheme in the two pilot areas, raising awareness of separate collection of biowaste;
- At least 1 120 biowaste collection bins will be distributed to the participating municipalities;
- Some 720 tonnes of biowaste will be recovered by the two pilot separate collection schemes in Athens;
- This biowaste will be composted, producing 300 tonnes of compost; and
- The project will promote sustainable management of biowaste.

Integrated green life-cycle management of waste oils and petroleum residues

Project background

Greece generates an estimated 200 000 tonnes/yr of waste oils and petroleum residues. At present, these can be re-refined; mixed with woodchips to produce a stable secondary fuel for cement kilns; or exported for disposal. The first two methods incur significant problems, since waste oils and petroleum residues are often mixed with other waste lubricants in ports and factories which, according to legislation, must be handled in ways that reduce the quality of re-refined lube oils produced and limit the production capabilities of cement kilns. Regeneration of waste oil could reduce the amounts of waste going to final disposal, with significant economic benefits.

Project objectives

This project aims to address and implement EU and Greek legislation on the integrated management of waste oils. The project will set up a pilot demonstration collection system for waste oils. It will also set up a pilot demonstration project for the separation at source of waste oils and petroleum residues. The project further aims to decouple environmental impact from economic growth by regenerating and recycling waste oils and petroleum residues into a 'new product', thereby applying the waste hierarchy approach of the Waste Framework Directive.

The project aims to contribute to the further development of national legislation addressing waste arising from these sources. It will also contribute to the implementation of the EU POP Regulation: waste oils and petroleum residues from the sources addressed in this project are often burned in facilities that do not fulfil environmental standards, thus resulting in the production of dioxins. By regenerating these wastes, this will be prevented.

Expected results:

The project is expected to produce a catalogue of sources (waste producers and points) and quantities of waste oils and petroleum residues produced in Greece from the shipping and industrial sectors. It will identify the chemical composition of wastes produced from 166 sources. It is expected that 1 660 tonnes of waste oils and petroleum residues from 166 locations will be collected and regenerated.

LIFE10 ENV/GR/000606
ELINA



Beneficiary:

Type of beneficiary

Large enterprise

Name of beneficiary

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Nikolaos REMPAKOS

Duration of project:

36 months (01/09/2011 - 31/08/2014)

Total budget in euro:

2,252,000.00

EC contribution in euro with %:

1,000,000.00 (50.00 %)

Generic theme:

Hazardous waste

A pilot separation at source of waste oils and petroleum residues will be implemented on two passenger vessels. Six stakeholder forum meetings will be held for the strengthening of national producer responsibility legislation in this field. A catalogue of existing infrastructure for processing waste oils and petroleum residues will be produced, along with proposals for expanding/improving environmental infrastructure. The project will advise and collaborate with selected sites (industry and/or maritime) on the separate collection and management of used lube oils and waste oils/residues. A green good practice guide will be produced and distributed. A database of at least 500 stakeholders will be compiled, and events, newsletters and other printed communication materials will target stakeholders in Greece and Italy.

Development and implementation of a demonstration system on Integrated Solid Waste Management for Tinos in line with the Waste Framework Directive

Project background

Municipal solid waste management is a complex problem in Greece, particularly on the country's many islands. Uncontrolled landfills are typically used for waste disposal, and cause pollution releases to air (biogas) and water (leaching), as well as fire risks. In the context of the new Waste Framework Directive, Greece must set up separate collections for each type of recyclable material by 2015, and by 2020, the reuse and recycling of paper, metal, plastics and glass from households must reach 50% of the waste stream by weight. Furthermore, according to the Landfill Directive, Greece must reduce the quantity of biodegradable waste going to final disposal by 20% compared with year 2000 levels, and by 50% by the year 2050. Current waste collection and management practices are not adequate to reach these targets.

Project objectives

The objectives of the ISWM-TINOS project are to promote and demonstrate Integrated Solid Waste Management (ISWM) to the municipality of Tinos and put into place the essential requirements for sustainable management of municipal solid waste (MSW) according to the Waste Framework Directive. The project intends to plan, design, operate and demonstrate an ISWM system that will include separate collection of recyclable materials – glass, metal, plastic and paper, as well as biowaste. To encourage separate collection of recyclables from MSW the project team will motivate the public to actively take part in the pilot collection scheme. It will also investigate and promote ongoing recovery operations that deliver the best overall environmental income. It will facilitate the separate collection and proper treatment of biowaste as an alternative to composting.

The project will conduct a lifecycle assessment (LCA) of different types of biowaste treatment with the aim of introducing an approach that takes into account the entire lifecycle of products and materials, not only the waste phase, and to focus on reducing the environmental impacts of waste generation and waste management, thereby strengthening the economic value of waste.

The project will contribute to the achievement of targets set for biowaste going to landfill as imposed by the Landfill Directive. Information provided to local authori-

LIFE10 ENV/GR/000610
ISWM-TINOS



Beneficiary:

Type of beneficiary

Local authority

Name of beneficiary

Municipality of Tinos Island

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Panagiotis KRONTIRAS

Duration of project:

32 months (01/10/2011 - 31/05/2014)

Total budget in euro:

1,437,368.00

EC contribution in euro with %:

718,684.00 (50.00 %)

Generic theme:

Municipal waste (including household and commercial)

ties will assist in introducing successful and cost effective organic waste separation and treatment schemes.

Expected results:

The project is expected to contribute to the implementation of the objectives and requirements of the Waste Framework Directive. These include the application of a waste hierarchy in waste policies; waste prevention; and implementation of recycling targets for household waste. This will be achieved through the planning, design, demonstration and implementation of an ISWM system in Tinos that results in the separate collection at source of glass, paper, plastic, metal and biowaste. Other expected results include:

- An LCA of composting and anaerobic digestion units;
- A physicochemical analysis and fuel and ash characterisation of the collected biowaste; and
- Guidelines/suggestions for full-scale implementation of the ISWM system in the municipality of Tinos.

Mediterranean fuel maps geodatabase for wildland & forest fire safety

Project background

Effective forest fire (FF) management requires knowledge of Fuel Classification Maps (FCMs), which are not widely available in Mediterranean countries for the following reasons:

- They are produced only at local or regional scale, without any regular updates and no standardised methodology;
- They are not produced according to a standard structure and are not harmonised according to INSPIRE;
- They are heterogeneous as they are produced using different methodologies and at different times. Therefore, available FCMs cannot support the systematic use of FF modelling at operational levels (prevention, suppression planning, etc.) of FF management.

Project objectives

The ArcFUEL project will deliver, for the Mediterranean region, a complete, up-to-date, methodology for Fuel Classification Mapping. This will be available on a Web-Geodatabase and will be based on 'readily available' harmonised, accessible and interoperable data, according to INSPIRE principles. The methodology will be demonstrated by pilot applications in Greece, Portugal, Italy and Spain.

Specifically, ArcFUEL aims to:

- Standardise a 'production flow' for producing FCMs;
- Develop an INSPIRE procedure for FCM production;
- Produce pilot FCMs for the whole of Greece and Portugal, and in pilot regions in Italy and Spain;

This will be achieved by carrying out the following actions:

- The acquisition of LANDSAT satellite images (that are of low cost);
- Processing of the images and production of an 'auto-processing' methodology (full automation);
- The production of the vegetation data/maps of an area;
- The collection and processing (methodological standardisation) of ancillary data for the area;
- 'Processing' of vegetation maps and ancillary data, and the development of the methodology (s/w technology) that delivers the area's Fuel Map; and
- Making the methodology and maps available through INSPIRE.

LIFE10 ENV/GR/000617
ArcFUEL



Beneficiary:

Type of beneficiary

Large enterprise

Name of beneficiary

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Despina KALLIDROMITOU

Duration of project:

27 months (01/10/2011 - 31/12/2013)

Total budget in euro:

1,305,865.00

EC contribution in euro with %:

652,932.00 (50.00 %)

Generic theme:

Forest management - Soil and landscape protection - Desertification prevention

Expected results:

- Digital Wildland and Forest Fuel Maps: National FCMs for Greece and Portugal and for the two large regions of Spain and Italy;
- A Production Chain Methodology for digital FCMs from readily available data (advanced FCMs will significantly improve the FF management performance as FCMs are the most significant input for most FF management processes, in comparison to other data such as meteorological parameters (e.g. wind) and terrain layout. FCMs will become available national-wide and be more accurate); and
- Geoportals delivering fuel maps and meteorology at a Mediterranean level in six languages (English, Spanish, French, German, Italian and Portuguese). This service will be offered free of charge to the participating and contributing public sector bodies (e.g. ministries and universities) and at a nominal fee to the private sector (e.g. consulting companies).

Development and demonstration of a waste prevention support tool for local authorities

Project background

The increasing production of waste and its disposal constitutes a serious environmental, social and economic problem for the EU. It is an issue of great concern that waste volumes continue to grow, despite the continuous design and implementation of advanced waste management schemes. The Waste Framework Directive (WFD) and the EU Waste Strategy (EUWS) have set waste prevention as a priority issue and waste prevention has been the main objective of both national and EU waste management policies for many years. Nevertheless, limited progress has been made so far in transforming this objective into practical action. EU and national targets have not been met and prevention measures are seldom considered as part of waste management, where the focus is invariably on waste recycling and recovery.

Project objectives

The WASP Tool project aims to prevent the production of waste through the development and proactive implementation of waste prevention strategies at the local authority level. The overall objective is to investigate, demonstrate and optimise the waste prevention potential of three Mediterranean municipalities, covering different geographic and waste policy contexts in Greece and Cyprus. Following a review and evaluation of existing waste prevention activities in other countries, the project will concentrate on developing a web-based decision support tool (the WASP Tool) that will allow local authorities to select and implement the optimum waste prevention programmes for their local circumstances. The three participating municipalities (two in Greece and one in Cyprus) will use the WASP Tool on a pilot basis, to design and implement local waste prevention strategies and the results will be used to further refine the tool. In addition, in each of the participating municipalities, the project will implement, monitor and evaluate four waste prevention actions (two of which will be home composting and food waste reduction). Finally, communication and dissemination activities regarding the WASP Tool and waste prevention in general will be designed and implemented.

Expected results:

- The identification and evaluation of the most efficient waste prevention actions that have been used throughout the EU;

LIFE10 ENV/GR/000622
WASP Tool



Beneficiary:

Type of beneficiary

University

Name of beneficiary

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Konstantia-Ekaterini LASARIDI

Duration of project:

36 months (01/10/2011- 30/09/2014)

Total budget in euro:

1,804,081.00

EC contribution in euro with %:

893,261.00 (49.51 %)

Generic theme:

Municipal waste (including household and commercial)

- The design and development of an internet-based waste prevention decision support tool (WASP Tool) that will contain all available information on waste prevention actions, and will allow local authorities to select and implement optimum customised waste prevention programmes and prepare waste prevention plans;
- The pilot development and implementation of three waste prevention strategies by the participating local authorities, with four priority waste prevention actions carried out as part of each waste prevention strategy;
- The delivery of 300 home compost bins and training for the respective homeowners;
- The implementation of training and dissemination activities on the WASP Tool and waste prevention in general.

Depolymerisation Technology for Rubber with Energy Optimisation to produce Carbon Products

Project background

Europe produces some 3.2 million tonnes/yr of waste tyres. The properties that make rubber tyres desirable as a consumer product, such as durability, heat resistance and traction, also make their disposal and reprocessing difficult. They are almost immune to biological degradation. When tyres are not properly managed and disposed of, they represent certain risks to public health and to the environment. Although the Landfill and End of Life Directives are having a positive impact on the management of end-of-life tyres (ELT), over-reliance on rubber-derived products, particularly tyres, still continues.

Project objectives

The DEPOTEC project proposes a depolymerisation process that will add value to the waste tyres by producing products that can be used as substitute carbon filler materials in the rubber manufacturing process. This will ultimately lead to a reduction in stockpiling of tyres as they will now become valuable raw materials for the production of these products. It will also offer an alternative to burning ELT to produce tyre-derived fuel.

The project aims to design, plan and construct a demonstration 'ZeroWaste' plant for depolymerisation of end-of-life tyres that is able to recycle a significant quantity of waste tyres per year and be financially viable on the basis of its byproducts. This plant will be self sustained, and new products will be created from waste with minimal energy consumption. The project aims to demonstrate the viability of future mainstreaming of the process by processing a significant volume of end-of-life tyres into a microporous carbon material with absorbent properties over the duration of the project. The most effective testing procedures for gauging the technical quality of the products of this process will be assessed and the project will also contribute to the development of a comprehensive series of environmental standards that will facilitate the accreditation of the products of recycling of ELT (e.g. through the European Eco-Label). The end result will be the development of a technology that can be used throughout Europe to enable value-added products to be produced from waste.

LIFE10 ENV/IE/000695
DEPOTEC



Beneficiary:

Type of beneficiary

Small and medium-sized enterprise

Name of beneficiary

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Name of contact person

Michael MURNANE

Duration of project:

36 months (05/09/2011 - 05/09/2014)

Total budget in euro:

3,986,622.00

EC contribution in euro with %:

1,554,729.00 (39.00 %)

Generic theme:

End-of-Life Vehicles (ELVs) and tyres

Expected results:

- A comparative study identifying best practice for viable and sustainable depolymerisation processes for ELT;
- The design and construction of a prototype facility for the depolymerisation of ELT, capable of processing 1 000 tonnes/yr;
- The production of 330 tonnes of carbon filler/1 000 tonnes of tyres using ELT as a feedstock;
- The development of activated carbons of highly microporous form with both high internal surface area and porosity;
- The diversion of 1 000 tonnes/yr of used tyres from landfill or incineration, saving significant CO₂ emissions and around 320 kWh of energy per tonne in relation to conventional forms of recycling of waste tyres; and
- The production and upgrading of some 330 tonnes of a carbon product through this process, and demonstration of its properties as equivalent to commercially available materials.

NO WASTE

LIFE10 ENV/IT/000307
NO.WA



Project background

Waste management remains an important challenge for local authorities in Italy, and private sector bodies represent key partners in the drive to minimise waste impacts. Large retailers, for example, can make a considerable contribution to waste minimisation as they have strong purchasing power and so can influence the packaging policies of their suppliers. This can subsequently help these retailers to attract environmentally conscious consumers, thus allowing them to benefit from their efforts to buy and sell low waste products. Local authorities can use their powers and influence to encourage large retailers to undertake this kind of action and in so doing, to reduce their waste footprint.

Project objectives

The NO.WA LIFE project aims to reduce waste streams in the municipality of Reggio Emilia by working with large retailers and local authorities to produce a waste prevention/reduction action plan. This will include proposals for the establishment of a reuse centre. Two pilot projects will be implemented to recover urban waste classified as reusable, with special attention paid to unsold items. Public participation and citizens awareness campaigns will run in parallel, to help reduce waste-intensive practices and encourage the buying and selling of recycled products. Waste monitoring systems will be introduced to complement the overall project objectives.

Expected results:

Key project results will include:

- The adoption and implementation of new waste reduction plans by Reggio Emilia and Trento;
- A feasibility study and a market analysis on the establishment of a reuse centre; and
- A new best practice guide to help stakeholders minimise waste streams.

It is expected that the project will help the region's private sector to reduce total packaging volumes and increase the use of biodegradable packaging materials. The region's public sector will also strengthen its commitment to recover and resell reusable goods, by giving new life to goods that otherwise would have been considered waste.

Beneficiary:

Type of beneficiary

Local authority

Name of beneficiary

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Laura MONTANARI

Duration of project:

36 months (01/01/2012-31/12/2014)

Total budget in euro:

1,449,664.00

EC contribution in euro with %:

724,832.00 (50.00 %)

Generic theme:

Municipal waste (including household and commercial)

In the longer term, the project will contribute to establishing more sustainable production and consumption practices.

From Urban Wastewater Treatment Plant to Self Sustainable Integrated Platform for Wastewater Refinement

Project background

The treatment of wastewater is a key element of environment conservation activities in Europe and, therefore, an important item on the European policy agenda (Directives 91/271/EEC and 2000/60/EC). The treatment of industrial wastewater, including effluent from the agro-industrial sector, presents a particular problem, however, because of high toxicity levels, which can compromise the functioning of common urban wastewater treatment plants.

In spite of this legislative context, most European countries still don't adequately treat and manage urban and industrial wastewater, and many are far from achieving the quality targets that have been established.

Project objectives

The aim of the WW-SIP project is to redefine the urban wastewater treatment plant (UWWTP) by transforming it into an integrated platform for sustainable and profitable sewage refinement. The project will create an economically, socially and environmentally sustainable wastewater refinement platform (WW-SIP) by integrating innovative technologies into the infrastructures and processes of a typical UWWTP. This goal will be pursued through the following objectives:

- To improve the technical performance and sustainability of the technologies identified as suitable for integration into the UWWTP, with the aim of developing a prototype of a self-sustainable platform for wastewater refinement. The prototype will be made up of the following units:
 - An electro-chemical pre-treatment of agro-industrial wastewater in order to remove toxic substances and make the effluent suitable for biological treatment, in accordance with Directive 91/271/EEC, and the extraction of bio-based products such as high-quality sludge for compost;
 - A combined heat and power (CHP) unit for biogas conversion, comprising a biodesulphurisation process in order to remove hydrogen sulphide from biogas before its combustion in the engine;
 - A micro algae photo bioreactor, using carbon dioxide from the engine combustion for algal biomass production, suitable as a substrate for the biogas plant or as a renewable source for biofuel production;
- To assess the environmental and economic sustainability of the entire value chain and inputs/outputs

LIFE10 ENV/IT/000308
WW-SIP



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Name of contact person

Francesca SANTORI

Duration of project:

48 months (01/01/2012 - 31/12/2015)

Total budget in euro:

3,854,549.00

EC contribution in euro with %:

1,927,274.00 (50.00 %)

Generic theme:

Waste water treatment

of the integrated process, through a Lifecycle Assessment and a cost-benefit analysis;

- To exchange knowledge and skills among the participants; and
- To disseminate results to the water and wastewater sector, scientific community, public, producers and potential end-users.

Expected results:

- The integration of innovative wastewater treatment and reuse technologies (Electro-chemical technology, CHP and microalgae photobioreactor technology) into the UWWTP;
- A fully functional WW-SIP prototype;
- The demonstration of the environmental and economic sustainability of the WW-SIP; and
- Dissemination of project results at national and international level.

Waste Collection Rewarding System On Demand

Project background

The environmental and health impacts of badly managed waste are key concerns for our society. If not properly managed, waste can have significant impacts on the environment, human health, and on climate change. EU Member States and the European Commission are aware of these concerns and new approaches are encouraged that provide sustainable solutions to the challenge of cost-effective waste management.

Project objectives

The LIFE CREWSOD project's main objectives focus on the introduction of a new public participation approach to minimising the amount of waste that people produce. Those that produce less waste will be rewarded by paying less for their waste collection services. The innovative approach will be applied across the entire territory of the Municipality of Mosciano Sant'Angelo, in Italy's Teramo province, after a preliminary test in the suburban area of Selva Piana (120 users).

Initial work will involve surveying participants to determine their waste management needs and behaviour. A customised collection calendar will then be set up and kits will be distributed that include different bins for different types of waste. Types and volumes of waste will be monitored and information will be provided to promote waste minimisation. In addition, fines may be imposed to prevent misuse of the system. New vehicles, bins and bags are to be acquired to help ensure efficient operations at waste processing stations.

Expected results:

The main results relate to fostering behavioural changes. These relate to increasing users' understanding of waste minimisation options as well as the environmental and socio-economic benefits of waste prevention. Outcomes from the project are estimated to allow possible savings of some 17% on the costs of waste collection services.

LIFE10 ENV/IT/000314
CREWSOD



Beneficiary:

Type of beneficiary

Small and medium-sized enterprise

Name of beneficiary

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Giovanni MARCHETTI

Duration of project:

36 months (01/09/2011 - 31/08/2014)

Total budget in euro:

2,389,386.00

EC contribution in euro with %:

964,077.00 (40.35 %)

Generic theme:

Municipal waste (including household and commercial)

Water Pollution Reduction and Water Saving Using a Natural Zeolite Cycle

Project background

The Nitrates Directive (91/676/CEE) was adopted by the EU in 1991 to protect groundwater threatened by overexploitation of agricultural land and the accumulation of nitrates. In those areas where agriculture forms the basis of the local economy, the overexploitation of land gives rise to a series of problems linked to massive chemical fertilisation. The effect of rainfall causes nitrates to accumulate in groundwater and surface waters, thus leading to eutrophication, especially in inner and coastal lagoons and swamps. As a result, progressive desertification of agricultural lands occurs in the medium or long term. The fertilising power of zeolites, however, is not affected by rain washing. Thus, zeolites could slow the process of exhaustion of agricultural soil and counteract the agricultural problems caused by climate change, growing consumption and the introduction of new crops, such as those used for biofuel.

Project objectives

The ZeoLIFE project aims to test an innovative integrated zeolitic cycle that reduces the nitrogen content in livestock effluents and agricultural soils, and improves the yield and economisation of irrigation water and fertilisers, thus reducing pollution of fresh water and groundwater and overexploitation of water resources.

More than 50% of natural zeolitic rock consists of zeolites, a group of minerals with special physical and chemical properties, such as high and selective cation exchange capacity (CEC), molecular adsorption and reversible dehydration. Zeolites can uptake ammonium (NH_4), which is found in fertilisers, and release it at a slow enough rate that it can be absorbed by the roots of plants.

Specific objectives of the project are:

- The protection of fresh water and groundwater from nitrate pollution produced by the agronomic industry;
- The reduction of water and soil pollution produced by point (cattle breeding) and diffuse (agriculture) sources of nitrates;
- The qualitative and quantitative preservation of the water resource;
- The reduction and prevention of seawater pollution;
- The optimisation of the use of water in agriculture and reduced use of chemical fertilisers;
- The improvement of agricultural soil characteristics; and

LIFE10 ENV/IT/000321
ZeoLIFE



Beneficiary:

Type of beneficiary

University

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Name of contact person

Massimo COLTORTI

Duration of project:

42 months (01/09/2011 - 28/02/2015)

Total budget in euro:

2,150,839.00

EC contribution in euro with %:

1,044,513.00 (48.56 %)

Generic theme:

Agricultural waste

- The trial of a feasible way to combat desertification and agricultural soil exhaustion.

Expected results:

The project is expected to:

- Reduce groundwater and surface water nitrate pollution, because of the reduction of chemical fertilisation in agriculture and of NH_4 content of manure;
- Decrease nitrate pollution in drainage channels flowing to coastal lagoons, while having a positive impact on marine habitats and improving shellfish breeding in the Sacca di Goro lagoon;
- Reduce by at least 30% the amount of water used for irrigation; and
- Improve the characteristics of soils by the addition of natural zeolites that increase soil ventilation, water retention capacity and cation reserve, allowing good yield even during droughts and/or rainy periods.

Integrated Renewable-Hydrogen-Magnesium (RHM) pilot plant for green-energy high-capacity production

Project background

Some dramatic effects of climate change include the reduction of the Earth's carrying capacity by inundation and the desertification of inhabited areas has adversely affected global food chains and worsened health conditions. This threat to security of life and human living conditions must be avoided by a fast transition to emission-free technologies and use of renewable sources. Many Mediterranean regions in the EU suffer from water shortages and are seen as unproductive because of their low populations. However, the availability of much sunlight and free land close to seawater are precious resources and inexhaustible free reservoirs of carbon-free ('green') energy. Two main issues must be addressed: The environmental impact of hydrogen production; and the key factors that adversely affect the market competitiveness of hydrogen as an energy carrier.

Project objectives

The RHM Pilot Plant project aims to demonstrate the technical feasibility of a pilot plant producing hydrogen and magnesium from renewable resources (solar irradiation and seawater).

The project seeks to demonstrate that industrial-scale production of magnesium and hydrogen is possible through fine adjustments to, and integration of, available technologies such as (i) desalination plants; (ii) magnesium electrolysis in extractive metallurgy; (iii) solar thermal power; and (iv) water electrolysis in hydrogen production.

The project also seeks to show the financial sustainability and potential market penetration of the RHM technology, including how the capital costs related to the set up and running of an integrated RHM plant can be greatly leveraged.

Wide dissemination of the project results is a main objective. Many social and environmental issues could be avoided by setting up a hydrogen energy-system through the use of a supply-chain based on hydrogen stored by solid magnesium hydrides, which can be safely transported.

Expected results:

The project expects to achieve:

LIFE10 ENV/IT/000323
RHM Pilot Plant



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Fabrizio D'ERRICO

Duration of project:

36 months (01/01/2012 - 31/12/2014)

Total budget in euro:

4,108,695.00

EC contribution in euro with %:

1,764,910.00 (42.96 %)

Generic theme:

Reduction of emission of greenhouse gases

- A total reduction of at least 80% of the carbon dioxide produced using current magnesium extraction via electrolysis;
- 100% 'green-hydrogen' production, through the use of a fully renewable electricity source to power the water electrolysis unit (namely a solar thermal unit);
- A very low global warming potential (GWP) pathway to produce energy stocks made of magnesium hydrides (MgH₂);
- A lifecycle assessment (LCA) of the RHM plant will be conducted from the production phase through to the MgH₂ packaging stage;
- The project will conduct a market introduction impact analysis in Europe, showcasing the environmental benefits of the large scale use of green-hydrogen that is safely and cost-effectively delivered as an alternative energy carrier for fuelling the automotive sector; and
- Results will be widely disseminated to policymakers, as well as industries involved in hydrogen production and use.

Pesticides Use Reduction in Agriculture: demonstration of an innovative Integrated Pest Management technology

Project background

The codling moth (*Cydia pomonella*) is a major pest of deciduous fruit orchards throughout the world. Left uncontrolled, it can destroy 80% or more of fruit crops.

Conventional control methods involve a combination of different agri-chemical treatments. However, this has a number of adverse side effects, such as the destruction of useful natural enemies, the development of resistance to pesticides by the moth, and high level of pesticide residue on the fruit. Therefore, alternative approaches are required that offer win-win benefits for fruit growers, society and the environment.

Project objectives

The aim of the PURA4IPM project is to demonstrate new approaches to combating the codling moth using low-impact technology, based on a blend of pheromones and insecticide. The pheromones and insecticide are mixed in a wax that is pasted on the upper part of the fruit tree. This approach avoids the need for the full tree or fruit to be sprayed with agri-chemicals. Male moths are attracted to the pheromones in the wax, and contact with the wax's insecticide kills the moth, thus reducing the breeding potential of the species.

Expected results:

- Project outcomes will determine optimal parameters for the wax content and application procedures in different environments, different size orchards and for different levels of infestation;
- Comparisons will be made with the mating disruption strategies currently used to support standard chemical treatments; and
- The final results of the project will be widely disseminated.

LIFE10 ENV/IT/000324
PURA4IPM



Beneficiary:

Type of beneficiary
International enterprise

Name of beneficiary
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Name of contact person
Francesco DREI

Duration of project:
42 months (01/09/2011 - 28/02/2015)

Total budget in euro:
1,084,498.00

EC contribution in euro with %:
542,049.00 (49.98 %)

Generic theme:
Other area - Impact of economic activities

New Absorbing Materials and Technologies for Feminine Hygiene Products with Reduced Waste

Project background

Disposable feminine care pads were developed at the beginning of the 20th century. In recent years, the increasing consumer focus on sustainable products is contributing to the growing popularity of bio-based super-absorbent polymers, which are generally based on modified cellulose, chitin and natural gums (guar, alginates and xanthan). These products are an eco-friendly and sustainable alternative to various non-renewable petroleum-based materials, but their high costs and/or low performance have greatly limited their market potential. Research and development carried out by the project beneficiary over the past 10 years has addressed these problems, designing an experimental multilayer structure where the bio-based super absorbents can be positioned or actually 'printed' in the middle of the product according to desired patterns.

Project objectives

The overall objectives of the SUSTABS project are to demonstrate that the new bio-based multi-layer material concept and technology for disposable feminine care pads, can meet product requirements (absorbency, dryness, flexibility, comfort, etc.), improving the cost/benefit ratio while at the same time greatly reducing the use of material and volume.

- Environmental: the manufacturing of the new disposal absorbents offers environmental benefits in terms of reduction of material usage and volume. Improvements are targeted in overall lifecycle performance in terms of: (i) less packaging; (ii) replacement of oil-based materials by high performance bio-based alternatives; (iii) reduced transport; and (iv) improved 'end of life' product phase;
- Policy and Market: The beneficiary wishes to show how product optimisation, eco-design and bio-based materials can pay-off in terms of sustainability, performance and competitiveness. This project should provide a demonstration case for the wider chemical industry and other related industries to support the reduction of their environmental and economical impact.

Expected results:

The project expects to:

- Reduce the percentage of volume and mass of the absorbent core material by up to 20-30% with a con-

LIFE10 ENV/IT/000325
SUSTABS



Beneficiary:

Type of beneficiary

International enterprise

Name of beneficiary

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Name of contact person

Remo BELLUCCI

Duration of project:

36 months (01/09/2011 - 01/09/2014)

Total budget in euro:

4,929,882.00

EC contribution in euro with %:

1,457,000.00 (29.55 %)

Generic theme:

Clean technologies

sequent benefit in terms of waste disposal and a 20% reduction in the required packaging material;

- Decrease emissions related to transport (up to 10% reduction in the usage of the number of trucks per year), packaging (up to 20-25% with respect to the current packaging material usage) and disposal phases;
- Improve the amount of renewable resources used (up to 20%) thanks to the introduction of cationic starch water based particles, which will reduce the oil based materials of the multilayer structure. This approach will increase the sustainability of industrial production without jeopardising the technological performance of the final product;
- Reduce the percentage of cellulose used from a current average percentage of about 50% to below 30% through the introduction of Super Absorbent Polymer (SAP) and bio-based menses super absorbents; and
- Reduce the level of overall water consumption related to its production process.

Particles size and composition in Mediterranean countries: geographical variability and short-term health effects

Project background

Most scientists agree that airborne particles with a diameter <10 micrometer (μ) have the most significant short-term effects on human health, while fine particles (PM_{2.5}) are the fraction responsible for the most severe health effects overall. In addition, it is widely known that the coarse fraction (PM 2.5-10 μ) has a predominantly natural origin while the fine fraction is produced by combustion (vehicles, industry and power stations), with traffic and heating being the most relevant sources in determining the increase in mortality and morbidity due to respiratory and heart diseases. However, data remain scarce for European Mediterranean countries, where air temperature, particle composition and Saharan dust influence environmental characteristics. As a result, these countries differ from other European areas.

Project objectives

The MED-PARTICLES project aims to improve understanding of the characteristics of particulate air pollution of cities in the Mediterranean area (five cities in Spain, one in France, six in Italy, two in Greece), as well as the relationship between those air pollution characteristics and public health. In particular, the project seeks to:

- Evaluate the geographical differences in particle size (PM₁₀, fine particles PM_{2.5}, and coarse particles, PM_{2.5-10}) and composition (Elemental Carbon, EC, Organic Carbon, OC, nitrates, sulphates, and metals);
- Evaluate the frequency of Saharan dust days and forest fires days;
- Compare particle sizes and composition in different areas of Mediterranean countries according to Saharan dust/no dust days and to forest fires/no fires days;
- Evaluate the short-term effects of PM₁₀, fine and coarse particles on daily mortality and emergency hospitalisations for cardiovascular and respiratory diseases;
- Evaluate potential effect modification of Saharan dust and forest fires on the association between particles and daily mortality and emergency hospitalisations for cardiovascular and respiratory diseases;
- Explore the role of specific PM components on short-term health effects; and
- Educate young scientists in epidemiological and statistical analyses and disseminate the scientific information available to different stakeholders (e.g. environmental and health authorities).

LIFE10 ENV/IT/000327
MED-PARTICLES



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Name of contact person

Massimo STAFOGGIA

Duration of project:

24 months (01/09/2011 - 31/08/2013)

Total budget in euro:

1,836,016.00

EC contribution in euro with %:

901,579.00 (49.11 %)

Generic theme:

Risk assessment - Pollution control

Expected results:

- A protocol, a database and a report describing daily concentrations of particles of different sizes for 14 cities in Europe, and intra- and inter-country variations;
- A protocol, database and report describing daily concentrations of PM components and the frequency of Saharan dust and forest fires days;
- A report on particle sizes and composition in different areas of Mediterranean countries according to Saharan dust/no dust days and to forest fires/no fires days;
- A protocol for statistical data analysis to examine mortality and morbidity;
- A report providing estimates of the short-term effects of PM₁₀, fine and coarse particles on daily mortality and morbidity for cardiovascular and respiratory diseases;
- A report evaluating potential effect modification of Saharan dust and forest fires on the association between particles and mortality and emergency hospitalisations; and
- A report considering the role of specific PM components on short-term health effects.

Participated assessment of the health, environmental and socio-economic impacts deriving from the handling of urban waste

Project background

Italy generates some 32.5 million tonnes/yr of municipal solid waste (MSW), of which 45% goes to landfill, whilst some 11% is incinerated. If the country's landfill sites incorporated the best available technologies (BAT), it could not only minimise the impact on soil and groundwater, but landfill waste could represent a source of energy if combined with biogas production. A similar argument applies to incineration plants, where adopting BAT could reduce atmospheric emissions and improve the efficiency of energy production.

Local community support for such processes helps to ensure their success and Local Agenda 21 (LA 21) approaches promote this type of citizen involvement in environmental management initiatives

Project objectives

The HIA21 LIFE project's key objectives focus on applying Health Impact Assessment (HIA) procedures into waste cycle management systems. Integrating HIA with LA 21 will better enable citizens, particularly disadvantaged ones, to share in decision-making processes around the location, construction and operation of waste-handling plants, as well as waste reuse and recycling issues.

The project will identify examples of existing waste treatment plants in Italy and apply a retrospective HIA – to be managed by LA 21 forums working in the area – at two different types of waste treatment plant. The HIA will be applied at the following facilities:

- An MSW landfill site in Lanciano – Chieti. Established in 1995, this is the main landfill site in Abruzzo, handling 54 000 m³/yr of waste, covering 13 ha and with a residual capacity for 2012 of 200 000-550 000 m³ of waste; and
- An MSW incinerator in Arezzo (Tuscany). Established in the late 1980s, this currently burns 40 000 tonnes/yr of waste, and is expected to double its capacity to 80 000 tonnes/yr in the near future.

Expected results:

- To create and develop a new tool for the investigation and evaluation of health, environmental and socio-economic effects caused by incinerators and municipal solid waste landfills;
- To provide recommendations and, if possible, guidelines for the application of HIA and LA 21 to the waste cycle. This will allow a comparison between

LIFE10 ENV/IT/000331
HIA21



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Name of contact person

Fabrizio BIANCHI

Duration of project:

40 months (01/09/2011 - 31/12/2014)

Total budget in euro:

1,978,072.00

EC contribution in euro with %:

924,313.00 (49.98 %)

Generic theme:

Risk assessment - Pollution control

different waste treatment methods, assessing their advantages and disadvantages from technological, cost and management perspectives;

- To expand assessment methodologies at a local, national and community level, creating a strong territorial expertise and knowledge;
- To create a set of health, environmental, economic and social indicators for the study area, which is to be updated yearly throughout the project;
- To test the efficiency of the intervention in relation to citizen support and the subsequent involvement of citizens in decision-making processes;
- To draw up two reports for decision-makers, one for each kind of waste treatment plant, thereby helping local public administrations in defining future territorial planning policies; and
- To create an international network to share the results obtained by this and similar projects. It is hoped that this network can be extended after the LIFE project.

Recovered waste cooking oil for combined heat and power production

Project background

The disposal of waste cooking oil into the environment causes problems for the proper functioning of water treatment plants, and for ecosystems in general. Indeed, oil discharged as wastewater requires a different cleaning process – involving a preliminary pre-water flotation-based treatment – in order to separate the buoyant material (oils and fats). However, this causes an overload of the water treatment plant and subsequent increased consumption of energy. As oil has a lower density than water, it floats over the water as a thin oily layer, forming a barrier that prevents normal oxygen exchange between air and water and thereby killing flora and fauna. If the oil reaches the surface of the groundwater it forms a layer 3-5 cm thick that moves with the water downstream to drinking water wells, making them unusable. At the same time, if dispersed into the soil, it turns into a very thin layer around the particles of earth, forming a barrier between the particles themselves, the water and the roots of plants capillaries, preventing the intake of nutrients.

Project objectives

The RECOIL project aims to recover the energy from waste cooking oil (WCO) by creating a network for its collection. This will help to reduce its release into the environment. Following collection and storage, the oil will be mechanically treated to remove impurities (food waste, water, etc...) and to produce a fuel for use in an internal combustion engine in a combined heat and power plant in Italy (in the province of Grosseto). In order to achieve its goals, the project will plan, develop, test and optimise the various phases of WCO collection, storage and treatment.

Specific project objectives are:

- To set up a door-to-door waste cooking oil (WCA) collection service;
- To develop software for the traceability and monitoring of the WCO collection and storage service;
- To convert the waste oil to a fuel through a low emission process, eliminating chemical conversion processes;
- To organise an awareness raising campaign on WCO recovery and on the environmental problems associated with its incorrect disposal;
- To create new jobs in the areas of WCO collection and treatment;

LIFE10 ENV/IT/000341
RECOIL



Beneficiary:

Type of beneficiary

Small and medium-sized enterprise

Name of beneficiary

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Name of contact person

Serena DRIGO

Duration of project:

42 months (01/09/2011 - 28/02/2015)

Total budget in euro:

1,819,352.00

EC contribution in euro with %:

871,526.00 (47.90 %)

Generic theme:

Municipal waste (including household and commercial)

- To train municipal technicians in successful WCO collection and storage;
- To produce clean energy (electricity and heat) and reduce CO₂ emissions;

Expected results:

- The involvement of the populations of the provinces of Grosseto and Forlì (c. 227 000 and 391 000 people respectively);
- The collection of approximately 3 090 tonnes/yr of WCO;
- The creation of new jobs for managing the collection chain;
- The extension of the collection service to the regions of Tuscany and Emilia-Romagna;
- An increased volume of WCO collected and the construction of other combined heat and power plants; and
- A new, monitored and optimised collection and storage system.

Green Site: supercritical fluid technologies for river and sea dredge sediment remediation

Project background

River and marine sediments play a fundamental role in the protection of European ecosystems. Every year in the EU around 200 million cubic metres of sediments are dug out: of these, 15 to 20% are contaminated by organic compounds (PAHs, PCB, pesticides, etc) and/or by heavy metals. Sediment can be considered as a sink for pollution. In river delta areas new sediments are formed continuously and as long as contaminants are released into the environment these new sediments may be polluted. Recent model studies from the Netherlands have shown that if the release of the main contaminants remains at current levels, polluted sediments can be expected for the next hundred years. Consequently, this large amount of polluted sediment needs to be correctly handled. In the last decades different treatment and disposal technologies have been investigated and applied in order to treat contaminated sediments. Some technologies have been adapted from other fields (mining, soil treatment etc), others are specifically designed for sediments.

Project objectives

The GREEN SITE project's overall aim is to demonstrate the effectiveness of innovative technologies for the reclamation of sediments from the excavation of the canals located in the industrial area of Porto Marghera, Venice. In particular, the new technologies involve the use of fluids at the super-critical state (SCF state) for the extraction and/or use of super-critical water (SCW) for the oxidation of hydrocarbons and organic compounds with a high environmental impact.

Specific project objectives are to:

- Set up of compact technologies for the quick decontamination of marine and fluvial sediments contaminated by hydrocarbons and other organic substances (PCBs, pesticides, etc) with an associated negative impact on human health and on ecosystems in waterside areas;
- Introduce technologies that don't use solvents and/or harmful chemical/biological compounds and that could diffuse into the environment at the end of the treatment phase;
- Develop technologies that are easy to transport and to install at contaminated sites, in order to allow a rapid and effective intervention;
- Develop and transfer "green chemistry" technologies in the field of contaminated land reclamation.

LIFE10 ENV/IT/000343
GREEN SITE



Beneficiary:

Type of beneficiary

Small and medium-sized enterprise

Name of beneficiary

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Guerrino CRAVIN

Duration of project:

24 months (01/10/2011 - 30/09/2013)

Total budget in euro:

1,377,428.00

EC contribution in euro with %:

684,298.00 (49.71 %)

Generic theme:

Site rehabilitation - Decontamination

Expected results:

- The possible removal and oxidation of a large range of hydrocarbons (PAHs) and other organic compounds of relevant negative impact such as PCBs, pesticides, etc, contained in the sediments;
- More than 90% of efficiency in extraction/ oxidation of target organic compounds;
- Improvement of kinetic rates of extraction/ oxidation of target organic compounds;
- Up to 90% reduction of volumes of wastewater and/ or other residual products obtained with the current soil washing techniques; and
- Implementation of compact equipment, easy to transport and to install, in the targeted sites.

Sludges from agglomerated stones industry for environmental sustainability

Project background

The European agglomerated stone production industry accounts for some 84% of total worldwide production. However, during the cutting and processing of stone slabs, blocks and tiles, the industry produces large quantities of sludge – 346 500 tonnes/yr in Europe - which is mostly sent to landfill.

If adequately treated, the sludge could be reused as a secondary raw material within the stone industry, reducing landfilling of sludge, excavation of primary materials and the CO₂ emissions associated with the transport of raw materials.

Project objectives

The SASIES project aims to develop and test a new process for the recovery and treatment of waste sludge from agglomerated stone cutting and processing. The project will put in place a strategy to exploit a “short production-supply chain”, where the raw material, agglomerated stone, and waste material (stone sludge) are reintroduced into the production process, thereby reducing the volume of waste going to landfill and the consumption of natural resources.

Expected results:

The project expects to achieve the following:

- Demonstrate the potential for recycling all sludge produced in the agglomerated stone industry, averting the need for landfill, and reducing the consumption of natural raw materials and CO₂ emissions;
- Recycle 6 250 tonnes of stone sludge from Santamargherita's agglomerated stone production;
- Reduce the amount of raw material excavated by 9 375 tonnes;
- Reduce CO₂ emissions associated with the transportation, landfill and delivery of raw and waste materials (3 500-4 000 fewer lorryloads per year);
- Two production processes and one pilot plant to recycle stone sludge;
- One monitoring and evaluation report on the project's achievements; and
- Eight demonstrations of the usability of the end-products in target industries in Europe.

LIFE10 ENV/IT/000346
SASIES



Beneficiary:

Type of beneficiary

Small and medium-sized enterprise

Name of beneficiary

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Name of contact person

Tiziano MESTRINER

Duration of project:

31 months (01/09/2011 - 31/03/2014)

Total budget in euro:

2,538,437.00

EC contribution in euro with %:

946,718.00 (37.30 %)

Generic theme:

Industrial waste (including manufacturing)

Urea-based nitrogenous fertilisers coated with zeolite: reducing drastically pollution due to nitrogen

Project background

Despite EU environmental and agricultural policy/measures to significantly reduce the use of chemical nitrogen fertilisers in agriculture, the use of urea is still the most commonly used nitrogen fertiliser – favoured by farmers because it delivers the largest amounts of nitrogen at the lowest costs. Costs are obviously a fundamental factor in decision-making in agriculture in an increasingly competitive environment. Even as the use of nitrogen organic fertilisers becomes more widespread, it seems unlikely they will completely substitute chemical fertilisers. One possibility explored by the UNIZEO project is to combine the two types of fertiliser using a newly-developed technology: coating the urea-based nitrogen fertiliser with zeolite (particularly efficient in holding and slowly releasing valuable nutrients to plants) in order to reduce the overall nitrogen used per hectare. In this way, the UNIZEO project plans to contribute to EU policy to reduce the use of chemical fertilisers and to protect groundwater and aquifers against nitrates pollution from agricultural activity.

Project objectives

The UNIZEO project aims to demonstrate that coating urea-based nitrogen fertiliser with zeolite is a technically and economically viable technology to allow the slow release of fertiliser (depending on the demands of a specific plant) to significantly reduce the release of unused nitrates into the environment. This should avoid in particular, groundwater pollution, but also reduce air pollution from ammonia emissions.

The zeolite coated urea-based fertiliser offers a sustainable solution to the persistent and excessive use of high quantities of nitrogen fertiliser in agriculture. Developed at a pilot plant, the project will also promote the widest possible application of its new product. To this end, it will integrate capacity building measures into the project planning. In addition, it will involve public administrations in the demonstration and transfer of the technology developed. It will also contribute to the development and demonstration of innovative technologies that facilitate the implementation of EU environment policy, in particular the objectives of the Nitrates Directive (91/676/EEC).

LIFE10 ENV/IT/000347
UNIZEO



Beneficiary:

Type of beneficiary

Large enterprise

Name of beneficiary

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Giorgio BOZZOLA

Duration of project:

43 months (01/09/2011 - 31/03/2015)

Total budget in euro:

2,440,074.00

EC contribution in euro with %:

1,218,518.00 (49.94 %)

Generic theme:

Diffuse and dispersed sources of pollution

Expected results:

- A fully operational pilot plant with a production capacity of 1 000 tonnes/yr;
- Zeolite coated fertiliser tested on agricultural lots and on a golf course over a total 2 500 ha, with 800 ha in control group;
- 30-40% reduction of use of urea on the tested farmland;
- Significant reduction of nitrates in groundwater and aquifers in the test sites;
- 45%-50% of reduction of loss of nitrogen into the atmosphere and leaching;
- 50% reduction in use of fertiliser, compared with potash; and 35% reduction in use of phosphor, due to the zeolite component;
- Crop yield in the pilot lots increased compared with that of crops using chemical fertilisers; and
- Increased knowledge and awareness among a target group of growers on water and air pollution by nitrates and the advantages of the new product.

Gyproc Eco-friendly

Project background

European Union waste legislation aims to promote the recycling of waste gypsum. At present, small amounts of waste gypsum are treated, with other construction and demolition waste in plants that produce material for road construction. However, the solubility of gypsum limits its reuse in this sector.

In total, some 80 million tonnes/yr of gypsum boards are produced globally (of which some 700 000 tonnes/yr are manufactured in Italy). Since most of the waste plasterboard goes to landfill, this means the industry generates some 15 million tonnes/yr of waste (400 000 tonnes/yr in Italy). This waste is a resource that can generate new secondary raw materials for use in the cement industry, replacing a considerable amount of raw gypsum extracted from quarries.

Project objectives

The Gy.Eco project aims to develop a system for managing and processing waste plasterboard and plaster from construction activities. This process could allow the recovery of gypsum for reuse as an additive in cement production.

The specific objectives of the project are:

- To reduce the amount of waste gypsum disposed of in landfill;
- To reduce the potential for the illegal disposal of gypsum waste by offering, for the first time, a national recycling service;
- To define criteria for the development of new recycling markets and the promotion of waste recycling in the construction sector;
- To reduce the extraction of natural gypsum;
- To produce a secondary raw material with a low environmental impact and to identify a certification procedure;
- To promote a more sustainable management of mechanical treatment and disposal facilities through the transfer of materials recovery technologies from other sectors; and
- To reduce the potential recovery of gypsum waste in non tested activities and/or the production of non certified secondary materials.

LIFE10 ENV/IT/000356

Gy.Eco



Beneficiary:

Type of beneficiary

International enterprise

Name of beneficiary

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Alessia Olga ISCARO

Duration of project:

39 months (01/09/2011 - 30/11/2014)

Total budget in euro:

3,600,402.00

EC contribution in euro with %:

1,272,848.00 (35.35 %)

Generic theme:

Construction and demolition waste

Expected results:

- The Gy.Eco project expects to develop a recovery process and a management system capable of treating 15 000 tonnes/yr of waste plasterboard in three pilot-plants, and recovering some 14 500 tonnes/yr of gypsum for reuse. These volumes are relatively small compared with the volumes of waste disposed of annually, but they are interesting because they represent an important proportional reduction in disposal in landfill and the results may facilitate a more wide-scale application;
- Another expected result is the involvement in the project of the leading producers of plasterboard waste; and
- The aim will be to collect the waste generated by at least 70% of the beneficiary's customers located within 300 km of the pilot plants.

Environmentally friendly natural products instead of chloroparaffins in the fattening phase of the tanning cycle

Project background

Chloroparaffins have been widely used in the leather fattening process for their chemical stability, low cost and good performance. Today, however, the requirement to meet high environmental standards means that the high chemical stability, low biodegradability and the high chlorine content represent severe limits to their use.

The EU produces some 150 million m²/yr of cattle/calf leather and more than 40 million m²/yr of sheep/goat leather (Source: COTANCE- Confederation of National Associations of Tanners and Dressers of the European Community). This equates to about 235 000 tonnes/yr of leather, with Italy and Spain the main leather producers in Europe.

Project objectives

The ECOFATTING project aims to demonstrate the use of an innovative technology for the fattening phase of the leather tanning process, with the goal of producing new or existing products with a significantly higher eco-sustainability profile.

The goal of the project is to produce a new category of products of natural origin, capable of substituting chlorosulfonates, which are currently used in the fattening phase during the leather tanning cycle.

This project will contribute to the protection of the environment and sustainable development through:

- The use of natural products that do not exceed the legal limits for the use of hazardous substances in the manufacture of leather goods, etc;
- The use of products that allow leather manufacturers and consumers of tanned leather to obtain the European eco-label for their products, ensuring compliance with the eco-label parameters related to leather and its processing (including chromium III content in wastewater, and arsenic, cadmium and lead content in products);
- The use of more biodegradable fatliquoring products, making it easier to treat wastewater from the tanning sector. In this way, less sludge is generated and the consumption of reagents can be reduced with respect to the physical-chemical systems traditionally most used by the sector; and
- The elimination of fatliquoring agents that favour the transformation of chromium III into chromium

LIFE10 ENV/IT/000364
ECOFATTING



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Name of contact person

Emilia BRAMANTI

Duration of project:

24 months (01/01/2012 - 31/12/2013)

Total budget in euro:

1,598,700.00

EC contribution in euro with %:

761,427.00 (47.63 %)

Generic theme:

Clean technologies

VI, because of the disposal of used leather articles and waste leather from the tanning industry.

Expected results:

The ECOFATTING project expects to deliver the following results:

- Innovative products, free from toxic substances, for use in the leather industry;
- Substitution of chloroparaffins with eco-sustainable natural products in the fattening process;
- Optimisation and application of new tanning formulations specific to the fattening phase, containing products derived from natural raw materials such as glucosides, biomasses, husk, and vegetable oils; and
- A study of the application of intelligent and ecological products: leather treated with formulations allowing controlled release of natural biological active agents or perfumes.

Use of poultry dejection for the bathing phase in the tanning cycle

Project background

The impact of environmental regulation on the leather tanning industry is considerable. The main environmental regulations concerning the EU tanning industry are the Integrated Pollution Prevention and Control (IPPC) Directive (96/61/EC), the Water Framework Directive (WFD) (2000/60/EC) and the REACH Regulation. The industry estimates that environmental protection costs amount to 5% of all operational costs. Moreover, in accordance with the river basin management plans of the WFD, tanning companies must take into account measures to reduce water pollution and adopt concrete actions to maintain the good ecological status of watercourses.

In order to maintain competitiveness in the global market place, European leather producers must exploit raw materials more efficiently and eliminate from industrial processes the negative impacts of waste materials (hides and skins). The raw materials required for tannery processes generate waste that currently has a significant negative environmental and economic impact. However, tannery by-products could be reused/recycled or converted into higher value secondary raw materials for other industries and the agricultural sector. Accordingly, EU tanners are adjusting and modernising their production methods.

Project objectives

The PODEBA project will demonstrate the eco-sustainability of using poultry manure for the 'bating phase' of leather tanning – a process whereby the hides for high quality leathers are treated with enzymes to soften them.

The expected environmental benefits are as follows:

- Recycling and reuse – an innovative application of a waste (poultry manure) normally associated with high environmental problems in management and disposal;
- Significant reductions in the negative environmental impacts from tannery wastewater by using a natural product in the 'bating' process;
- The application of an innovative treatment able to deodorise the poultry manure;
- Use of recycled natural waste instead of industrial chemical products, with savings in costs and energy and water consumption;
- The application of innovative formulations of poly-functional substrates for regulation purposes with active principles that enable controlled release; and
- Production of high-end (fashion) leather products with anti-microbial, self-cleaning, biological, eco-friendly properties.

LIFE10 ENV/IT/000365
PODEBA



Beneficiary:

Type of beneficiary

Public enterprise

Name of beneficiary

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Alice DALL'ARA

Duration of project:

30 months (01/01/2012 - 30/06/2014)

Total budget in euro:

1,200,668.00

EC contribution in euro with %:

586,387.00 (48.84 %)

Generic theme:

Clean technologies

Expected results:

- The application of an innovative deodorisation technique for the poultry manure with the production of 2.4 mg of laying hen manure and the reduction of ammonia emissions (50%) in the final product compared with those from initial wet laying hen manure;
- A reduction in the costs of the bathing phase by re-using a waste product instead of industrial chemical products;
- A reduction in the negative environmental impact of the tanning process by using a natural product (e.g. reduction of sulphur compound emissions of c. 50% at laboratory level);
- Lower water and energy costs;
- Fewer negative environmental impacts from the management of the poultry manure;
- A reduction of pollutants in wastewater; and
- The production of footwear and furniture using the innovative bating technique (i.e. 100 pairs of shoes and 10-15 upholstery products such as sofas or chairs).

Sustainable Cruise - Prototypes and approaches for raising the waste hierarchy on board and certifying it

Project background

According to the EU's Waste Framework Directive, waste prevention should be the first priority of waste management, while re-use and material recycling should be preferred to energy recovery from waste. A cruise ship is like a small town and, given the degree of luxury afforded passengers on cruise ships, per capita waste production is even higher. The amount of waste generated is 70 times more than a typical cargo ship. Cruise ships represent less than 1% of the global merchant fleet yet it has been estimated that they are responsible for 25% of all waste generated by merchant vessels. In accordance with EU Directive 2000/59, Article 4(2), it is clear that any home port or port of call for cruise ships should provide adequate waste management facilities to cope with the volume of waste generated by these vessels. Nonetheless, onboard and onshore waste management has never been tackled from a recycling perspective, nor is it regulated by an EU Directive or national laws, and an integration of the Kyoto requirements in the marine sector is still missing.

Project objectives

The Sustainable Cruise project aims to demonstrate the potential for waste prevention, recovery and recycling on a cruise ship, focusing on the detection, testing, evaluation and dissemination of best available techniques and approaches for three on-board waste streams: (i) packaging; (ii) biodegradable waste; and (iii) paper; and three horizontal issues: (i) energy efficiency; (ii) onshore rubbish disposal; and (iii) normative consistency and pre-certification.

The project will identify and assess the environmental impacts (through a lifecycle assessment - LCA - methodology) and the technical and economic viability of the large-scale introduction of promising solutions for the prevention, recovery and recycling of onboard packaging, biodegradable and paper waste.

The project will also draft first suggestions for a standardised approach to waste management on-board, applying for the first time the Kyoto requirements in the marine sector. The project will work with this approach in order to test advanced solutions for waste management and provide guidelines for a standard process. It will provide guidelines for an advanced certification scheme and assess some additional criteria in order to verify the possibility of converting CO₂ emissions reductions into tradeable carbon credits.

LIFE10 ENV/IT/000367
Sustainable Cruise



Beneficiary:

Type of beneficiary

Large enterprise

Name of beneficiary

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Elisabetta PINNA

Duration of project:

34 months (01/09/2011-30/06/2014)

Total budget in euro:

2,629,246.00

EC contribution in euro with %:

1,314,623.00 (50.00 %)

Generic theme:

General: waste management

Expected results:

- Two pilot plants (one on board, one in a laboratory) to prototype and demonstrate an innovative methodology to convert biodegradable waste into useable products;
- An annual database update of a map of ports' waste disposal capacity, recovery technology, waste stream features, costs and so on;
- A computational study of CO₂ emissions reductions from energy efficiency measures in waste management;
- A feasibility analysis of VER (Verified Emission Reductions) credit generation;
- A new scheme for optimising waste treatment on-board;
- A set of guidelines for the application and certification of the proposed new technologies and management; and
- A set of guidelines for waste prevention, recovery and recycling.

European Ports Life Cycle

Assessment (LCA)

Project background

Europe's ports are key-elements of cohesion in Europe, as reflected in the Commission's Communication on a European Ports Policy (COM/2007/0616) that follows up and implements the Communication on an Integrated Maritime Policy (COM/2007/575). In particular, EU port authorities need to respond to the following challenges:

- The need for a major technological change, marked by the development of cleaner operations in port environments;
- A reduction of greenhouse gases in the port environment;
- The development of a dialogue on performance and development of ports between port stakeholders.

This project aims to develop a lifecycle assessment (LCA) model in line with EU environmental legislation concerning port development.

Project objectives

The project's overall objective is to develop the port of Anzio on the coast of Lazio, Italy, as a model of LCA application and eco-design.

Specific goals are to:

- Minimise negative environmental impacts during the site construction, port management and completion stages; and
- Involve stakeholders fully in all stages from port design to port management.

Other goals of the project are to:

- Define all steps in the 'life' of a port from an environmental point of view (construction, management and decommissioning) with a strategic approach that is focused on integration by different themes, space and time;
- Promote effective implementation and enforcement of EU legislation at regional level and increase the knowledge base for environmental policy concerning seaports and coastal environments;
- Identify all environmental best practices for each step in the 'life' of a port; and
- Design integrated management systems for water, energy, waste, construction sites, spatial planning and urban green areas, and test them in this specific context.

LIFE10 ENV/IT/000369
LCA4PORTS



Beneficiary:

Type of beneficiary

Public enterprise

Name of beneficiary

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Name of contact person

Gianluca IEVOLELLA

Duration of project:

48 months (01/11/2011 - 01/11/2015)

Total budget in euro:

1,091,650.00

EC contribution in euro with %:

485,300.00 (44.45 %)

Generic theme:

Sustainable building

Expected results:

- 100% energy self-sufficiency of the port buildings (Directive 2010/31/EU) and 50% reduction in energy consumption in the port area;
- 100% energy efficiency for the external and internal lighting;
- Reduced consumption of water (drinking water quality) for the buildings of the port;
- Water (not drinking water quality) to be used for green areas irrigation;
- Optimisation of the wastewater collection and treatment system;
- Implementation of rainwater recovery systems for port buildings;
- Separation of sewerage and drainage systems;
- 70% recycling of inert material; and
- 100% reuse of excavated material.

Local Waste Market for second life products

Project background

Waste volumes are increasing exponentially in the European Union, outpacing even economic growth. Each year in the EU, three billion tonnes of waste, including 90 million tonnes of hazardous waste, are thrown away, equivalent to about six tonnes of solid waste per person. According to OECD estimates, these volumes will increase by a further 45% by 2020. The EU's Sixth Environment Action Programme identifies waste prevention and management as one of four top priorities. Its primary aim is to decouple waste generation from economic growth.

Project objectives

The project will work on lifecycle thinking, eco-design and the development of recycling markets, and has the following aims:

- To reduce urban waste by developing a local market for recycled or reused materials, with measures both on the supply side (creating the conditions to collect and add value to recyclable waste) and the demand side (creating demand through green public procurement policies in public bodies and green buying procedures in companies);
- To develop the existing green public procurement schemes in local authorities through a cradle-to-cradle approach, linking buying procedures to eco-design of goods and products;
- To promote waste prevention, encourage the recovery of waste and the use of recovered materials in order to preserve natural resources;
- To spread awareness of reused/recycled products to consumers, retailers, producers and public authorities; and
- To raise the awareness of consumers, retailers, producers and local bodies about how waste can be reduced through the reuse or purchase of recycled products.

Expected results:

The project will develop a local waste market for second-life products with the direct engagement of the local community, in particular social cooperatives already active in this field, public bodies, local businesses and citizens.

The project will aim to intercept and recycle up to 70% of the municipality's waste, resulting in the:

- Increase of recovered materials;
- Increase of recycling at local level;

LIFE10 ENV/IT/000373
LOWaste



Beneficiary:

Type of beneficiary

Local authority

Name of beneficiary

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Name of contact person

Lara SITTI

Duration of project:

34 months (01/09/2011 - 30/06/2014)

Total budget in euro:

1,109,000.00

EC contribution in euro with %:

554,500.00 (50.00 %)

Generic theme:

Eco-labelling - Eco-market - Consumer awareness - Green public procurement

- Reduction of CO₂ emissions (less waste going to landfill); and
- Reduction in consumption of raw materials and other resources used for industrial processes.

For second-life products, the project will apply eco-design to specific waste streams:

- Food: production of bio-compost from organic waste;
- Construction and demolition waste: recovery and creation of new materials to be used in the renovation of streets, parks, cycle paths or other construction projects;
- IT equipment: recycled for use in schools and offices.

The project aims to persuade at least 10 companies to commit to being "big buyers" of second-life products, and will involve at least three social cooperatives, giving disadvantaged people the opportunity to learn technical skills.

Implementation of a water saving and artificial recharging participated strategy for the quantitative groundwater layer rebalance of the upper Vicenza plain

Project background

One of the negative impacts of climate change in Mediterranean countries is water shortages. While only a minor reduction in the total amount of water that reaches the ground from the atmosphere has been recorded in the past few decades, significant hydrological changes are occurring. For example, weather events (such as rainstorms) have shorter durations and are more extreme.

Therefore, there is a need for action in areas of water stress, such as the Po valley in the Veneto Region, Italy. The valley's natural infiltration capacity has been compromised and changes in river flows represent an environmental problem, as well as a direct threat to public health. In particular, the slow impoverishment of water in the undifferentiated groundwater table of the upper Vicenza plain is resulting in water shortages, water conflicts, the outflow of the Resorgiva natural system, and an increase in investment costs for water supply. An immediate and consolidated effort to reverse the current trend is imperative.

Project objectives

The AQUOR project aims to develop an adaptive strategy to climate change to support the sustainable governance of the upper Vicenza's groundwater resource. It will rebalance the area's water budget, make better use of the water resource and improve infiltration processes.

The project's specific objectives are to:

- Create an integrated knowledge structure on the hydro-geological system. This measure aims to develop a GIS information system for the hydro-geological and territorial system of the upper Vicenza plain;
- Alert all stakeholders to the importance of groundwater, water saving, and groundwater recharge;
- Demonstrate the technical feasibility, the economic benefit and the environmental sustainability of technical solutions for recharging the groundwater layers; and
- Develop integrated governance of the groundwater resource at the local level in order to transfer the experience of the project into a strategy for the governance of the territory, with special reference to safeguarding the groundwater resources as established by Directive 2000/60/EC, as well as by national and

LIFE10 ENV/IT/000380
AQUOR



Beneficiary:

Type of beneficiary

Local authority

Name of beneficiary

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Teresa MURARO

Duration of project:

24 months (01/09/2011 - 01/09/2013)

Total budget in euro:

1,814,548.00

EC contribution in euro with %:

693,348.00 (38.21 %)

Generic theme:

Water supply - Water quality - Ground water protection

regional laws. The participatory process to be used during the project will establish a process of shared decision-making and, at the same time, clarify the role of the different actors affecting the condition of the groundwater resources.

Expected results:

- A 10% reduction in water extraction from the upper Vicenza plain's groundwater layer and a 30% gain in the recharge water coming from the Astico River;
- An action plan for the governance of the water resource in the upper Vicenza plain;
- A Territorial Information System for the governance of the water resources;
- Engagement of at least 80% of the water users in the upper Vicenza plain through education and training activities focused on the themes of water saving and safeguarding groundwater; and
- A database of monitoring data that can be used to verify the effectiveness of the solutions proposed.

Integration of Traffic and Environmental data for improving green policies in the city of Bolzano

Project background

Transport contributes significantly to air pollution, and to greenhouse gas emissions, which must be drastically reduced in the near future in order to limit global warming. Transport emissions need to be monitored and understood, but mobility is also considered a vital social good. Auto manufacturers are improving the efficiency of their vehicles, but these modifications alone are not enough. Complementary approaches are necessary, addressing the density of vehicles on the road and the related impacts (such as congestion causing stop-and-go behaviour) without drastically limiting people's mobility.

Project objectives

The main objective of the INTEGREEN project is to demonstrate a system that will provide the public authorities in Bolzano with distributed correlated traffic/environmental information, as the basis for eco-friendly traffic management policies. In order to do this, the INTEGREEN system will integrate dynamic traffic and environmental data provided by vehicles, with static environmental data collected by the city's environmental network stations.

In addition, on the basis of the validated INTEGREEN framework, the project will study and demonstrate the quantitative impact on the urban environment of specific traffic policies, including novel strategies. This study will include a quantitative assessment of the importance of spreading processed information to the whole population through different communication channels, including existing variable message signs, and through new web-based tools. The project will be given greater impact locally and at EU level by dedicated actions, including an awareness-raising campaign for improving driver behaviour and habits.

Expected results:

The main result of the INTEGREEN project will be an extension of the capabilities of the city of Bolzano's mobility centre. The results expected by the end of the project are as follows:

- Availability of information about environmental conditions at the supervisory centre to increase from once a day at present to at least 3-5 samples per hour;

LIFE10 ENV/IT/000389
INTEGREEN



Beneficiary:

Type of beneficiary

Local authority

Name of beneficiary

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Name of contact person

Ivan MORODER

Duration of project:

42 months (01/09/2011 - 28/02/2015)

Total budget in euro:

1,311,810.00

EC contribution in euro with %:

614,610.00 (50.00 %)

Generic theme:

Urban design - Quality of life - Transport planning

- The time needed to react after an extraordinary traffic/environmental event (for example, an accident) to decrease by 30-50%;
- The ability to prevent critical situations to be increased by 30-50%;
- Update times for traffic and environmental plans to be reduced by one-third, allowing for reviews every 4 months; and
- The optimised traffic policies will directly reduce road-transport related CO₂ emissions by an estimated 10-20%. A further contribution will be provided by the education of mobility participants, estimated in the order of 3-10%. Altogether, CO₂ emissions will be cut by 15-30%. The impact on the emissions of other pollutants is expected to be similar.

Development and Implementation of Innovative and Sustainable Technologies for the Use of Scrap Tyre Rubber in Road Pavements

Project background

Europe produces an estimated 250 million used rubber tyres per year. Historically, the majority of end-of-life tyres (ELT) were sent to landfill sites. However, the landfilling of whole tyres has been banned since July 2006 under the EU Landfill Directive (1999/31/CE). Moreover, the revised EU End-of-Life Vehicles Directive (2011/37/EU) now requires the reuse and/or recovery of almost all ELT.

One alternative is the reuse of scrap rubber tyres as a material in the construction of pavements. Previous experiences in Europe and the US have validated a so-called 'wet' technology, based on the use of finely ground tyre rubber, which is added to the binding phase of bituminous mixtures used in pavement materials. This technology has been successfully implemented with the development of appropriate standards for the design and laying of special bituminous mixtures which, depending on their composition and on their corresponding functional and structural properties, are referred to as 'gap-graded' or 'open-graded'. Recent trials carried out by the Province of Turin and the Politecnico di Torino have examined the use of gap-graded mixtures for the maintenance of the province's pavements.

Project objectives

The TyRec4LIFE project's overall objective is to expand the use of bituminous materials containing used tyre rubber for pavements, focusing on issues that are currently limiting their widespread use. It will validate the use of 'open-graded' and 'controlled texture' bituminous mixtures.

Specific goals include:

- The development of solutions for the reduction of energy consumption and emissions. The project will consider the use of special viscosity-reduction additives (e.g. zeolites) for the reduction of mixing temperatures of bituminous mixtures containing used tyre rubber. This will also enable maintenance and construction operations to be carried out more efficiently and in more demanding environmental conditions;
- Conducting trials for the preliminary implementation of the 'dry' technology, whereby coarser used tyre rubber is used in bituminous mixtures as a partial substitute for fine aggregates. This goal is of particular interest since this application requires much greater quantities of used tyre rubber than in the 'wet' process, thus providing an ideal end-use for these materials.

LIFE10 ENV/IT/000390
TyRec4LIFE



Beneficiary:

Type of beneficiary

Local authority

Name of beneficiary

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Agata FORTUNATO

Duration of project:

36 months (01/09/2011 - 31/08/2014)

Total budget in euro:

3,425,002.00

EC contribution in euro with %:

1,244,492.00 (36.34 %)

Generic theme:

End-of-Life Vehicles (ELV's) and tyres

Expected results:

- Updated standards for the construction of gap-graded bituminous mixtures with a particular emphasis on working with reduced temperature and with recycled aggregates deriving from industrial processes;
- Standards for the construction of 'controlled-texture' mixtures with a particular emphasis on creating a balance between structural and functional properties;
- An innovative mixing technology for the implementation of the 'dry' technology;
- A complete environmental assessment of the proposed technologies, with the inclusion of risk assessment concepts in the traditional lifecycle analysis;
- A complete financial and economic assessment of the proposed technologies in the context of local and urban road networks;
- A public database of the experimental results on various types of aggregates, scrap tyre rubber products and bituminous mixtures; and
- A public database of data from field trials.

Desert-dust Impact on Air quality through model-Predictions and Advanced Sensors Observations

Project background

The contribution of Saharan dust to particulate matter (PM) levels in Europe can be significant during a large part of the year. This is seen in air quality evaluations based on PM monitoring. The EU Air Quality Directive (2008/50/EC) allows Member States to account for dust from natural sources before comparing concentrations of PM in air to the relevant limit values. The European Commission in 2010 issued guidelines to help the assessment of the contribution of natural particles to PM levels. Mineral particles from dry regions are among these natural contributions, with the guidelines setting out a Saharan desert dust-detection methodology (BASELINE-dddM).

Project objectives

The DIAPASON project will formulate an upgraded, innovative, robust and user-oriented desert dust detection methodology, the DIAPASON-dddM. This will build on the Commission's BASELINE-dddM, which bases the detection of the presence of Saharan dust at the measuring site on plausible consequences (increase in PM) rather than on evidence of the spreading to the ground of the satellite-observed and model-predicted dust plumes.

DIAPASON then proposes to strengthen and optimise the BASELINE-dddM, by means of new, advanced observations. To this end, prototypes of affordable remote sensing devices (Polarisation Lidar-Ceilometers, PLCs) will be designed and produced by the project. The DIAPASON-dddM will be based on measurements from these new systems together with optical particle counters (OPCs).

To add value, the innovative PLC technology developed by DIAPASON will also be able to detect and monitor, with profiling capabilities, advection of other natural particulate matter, such as volcanic ash plumes or PM from wildfires.

Expected results:

The DIAPASON-dddM will:

- Provide a snapshot of the vertical extent and evolution of dust plumes;
- Minimise the number of parameters to be employed in estimating the occurrence of Saharan dust episodes;

LIFE10 ENV/IT/000391
DIAPASON



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Gian Paolo GOBBI

Duration of project:

36 months (30/09/2011 - 30/09/2014)

Total budget in euro:

1,859,598.00

EC contribution in euro with %:

893,799.00 (48.06 %)

Generic theme:

Air quality management and noise abatement

- Allow for size-resolved assessment of the impact of the dust events on PM levels;
- Design and develop a new affordable Polarisation Lidar-Ceilometer (PLC) capable of monitoring and profiling dust plumes in the atmosphere;
- Implement in the Rome region the Commission's 2010 guidelines, which will provide the BASELINE-dddM for the project;
- Set up three pilot stations in the Rome area for routine PM air-quality monitoring (PM10, PM2.5), and including PLC prototypes and optical particle counters; and
- Carry out year-round measurements at the three pilot stations, providing relevant logbooks and databases.

Identification determination traceability integrated system for WEEE

Project background

Waste electrical and electronic equipment (WEEE) is the fastest growing component of the municipal waste stream. Every year, WEEE production increases three times as fast as municipal solid waste. In Europe overall, the rates of WEEE disposal are still low, which is particularly concerning given the predicted increase in the amount of Electrical and Electronic Equipment (EEE) placed on the market and the consequent increase in the volume of WEEE produced in the future. To tackle this problem, the EU drew up the first WEEE Framework Directive 2002/96/EC in order to ensure separate waste collection and the adherence to proper waste disposal, recovery and recycling

Project objectives

The IDENTIS WEEE project aims to significantly improve the separate collection of domestic and municipal WEEE using innovative new methods for intercepting, collecting, separating and optimising this waste stream. These will include innovative and diversified prototypes/containers, designed to collect different categories of WEEE and to be placed on roads and squares, or inside points of sale such as retail outlets, service centres and waste collection facilities. A technical system (data processing centre) that can trace WEEE collection will also be developed.

Specific objectives of the project include:

- To increase the quality and quantity of separately collected WEEE. The aim is to increase the separate collection of WEEE by 120% in Italy, 100% in Slovenia and by 67% in Spain;
- To provide innovative services to citizens and to distributors, and to ensure the traceability of WEEE collection and optimum management of WEEE;
- To bridge the gap between the volume of separately collected WEEE and the amount of EEE placed on the market by integrating existing systems for WEEE collection with innovative solutions; and
- To share and exchange data with institutional partners, stakeholders and the departments of the European Commission.

Expected results:

The main result of the project will be the implementation of an innovative system for WEEE collection and traceability, which will be tested in the countries involved in the partnership (Italy, Slovenia and Spain). The project

LIFE10 ENV/IT/000393
IDENTIS WEEE



Beneficiary:

Type of beneficiary

Small and medium-sized enterprise

Name of beneficiary

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Paolo PAOLI

Duration of project:

44 months (01/10/2011 - 30/05/2015)

Total budget in euro:

3,522,336.00

EC contribution in euro with %:

1,761,168.00 (50.00 %)

Generic theme:

Waste from Electrical and Electronic Equipment

also expects to achieve the following outcomes:

- Regular monitoring of WEEE collection and the start of its treatment, recovery and recycling;
- Environmental awareness among citizens involved in the project and a reduced impact of municipal waste on the environment;
- Information on traceability/separate collection of WEEE, improvement targets and other data useful for the implementation of new regulations, and the assessment/review of plans and programmes drafted by local, national and European policymakers, as well as by the European Environment Agency; and
- A transnational network for the creation of the recycling-based society, established through the development of a co-operation agreement between the project partners and stakeholders, which is designed to ensure ongoing coordination of collection, treatment, recovery and recycling processes, as well as the development of new initiatives and a WEEE recycling market.

Water re-born - artificial recharge: innovative technologies for the sustainable management of water resources

Project background

Artificial recharge (AR), aimed at counterbalancing natural losses, is an appropriate and effective tool to protect freshwater and groundwater. AR techniques have already been applied to coastal salty aquifers to combat salt intrusion, but AR is not regulated at EU level, and Italian water directives limit its application to salty aquifers. If not regulated, large-scale use of AR would entail risks both for the quality and the quantity of freshwater. To guarantee correct application of recharge techniques, legislation should define: where and how to abstract surface water resources; the chemical and physical characteristics of recharge water with respect to the chemical activity and the hydrogeological structure of the aquifer; recharge methods; environmental impact; and set-up and design of the monitoring network.

Project objectives

The WARBO project will facilitate the regulation of AR and to respond to the need to safeguard, protect and enhance water and land ecosystems. The test phase will concentrate on sites with AR problems that host ecosystems of community interest where urgent measures are needed to combat water scarcity.

The project will develop specific experimental protocols that will define the administrative procedures to be followed, and will specify how to manage recharge activities. The protocols will concern direct (hydrogeological, geochemical and isotopic) and indirect (geophysical and remote sensing) methods, and will be finalised and applied to two main macro-areas: a) the Friuli plain; b) the southern plain in the Copparo area (Ferrara).

Expected results:

- Definition of the recharge method, development of a model to evaluate the response of aquifers, and assess the experimental WARBO methods in the test areas;
- Estimates of the time and water volumes needed to stabilise the quality and quantity of an unconfined aquifer, and to recover the initial piezometric level; for salty aquifers, estimates of the time and volumes needed to recreate a stable freshwater aquifer for water supply purposes;
- Modelling of the dynamics of the spring line, whose levels should increase after AR;

LIFE10 ENV/IT/000394
WARBO



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Name of contact person

Daniel NIETO YABAR

Duration of project:

30 months (01/01/2012 - 30/06/2014)

Total budget in euro:

1,849,280.00

EC contribution in euro with %:

860,887.00 (46.55 %)

Generic theme:

Water supply - Water quality - Ground water protection

- Assessment of the impact of AR on: 1) degradation of organic substances due to the input of high quality water; 2) increase in the piezometric level of the aquifer; 3) protection of the environmental characteristics of rivers and streams as a result of the recovery of the feeding functions of artificially recharged aquifers;
- Reduction in subsidence caused by excessive withdrawal of underground water;
- Use of aquifers as water storage and transport systems as an alternative to building dams and costly water-supply systems;
- Transfer of knowledge with a view towards the acquisition of data and the management of AR for geothermal purposes; and
- Development of reliable models for managing AR activities.

Integrated fumes depuration and heat recovery system in energy intensive industries

Project background

Energy intensive industrial processes (iron, steel and cement production, glass making, etc.) emit heat and carbon dioxide (CO₂) into the environment. The power installed in these processes, usually hundreds of megawatts, along with resistances due to technological and non-technological barriers, has negatively influenced the introduction of more energy efficient systems that are able to recover effluents for energy production and CO₂ reduction in energy intensive industries (EII).

Project objectives

The project aims to develop and study a heat recovery system, completely integrated into a fume extraction plant, by using water in a closed loop for cooling waste fumes, and operating at a higher temperature and pressure than traditional methods (150-200°C instead of 50-80°C). This is expected to lead to a significant reduction in total power consumption and an improvement in the performance of the fume depuration plant in energy intensive industrial applications (iron and steel industries, cement, glass, etc.). Using a higher temperature for cooling the effluents should also make it possible to extend the life of the system components, usually perishable parts. Power generation from effluents, currently considered a waste, could drastically reduce, and in some applications eliminate, the energy consumption of fume depuration, helping to reduce CO₂ emissions and other environmental impacts.

Expected results:

- The demonstration on an industrial scale of an integrated plant for fume depuration and heat recovery, with reduced or near zero power consumption;
- The technological validation of heat recovery applications in energy intensive processes and the analysis of performance;
- The evaluation of environmental benefits related to reduced greenhouse gas (GHG) emissions.
- Implementation of a Local Pilot Observatory (created in the LIFE+ H-REII project - LIFE08 ENV/IT/000422) concerning CO₂ reduction from EII through heat recovery applications, involving both partners and scientific organisations, institutional bodies and industrial organisations;
- Quantification of the potential contribution of EII to GHG reduction objectives by 2020 using heat recovery. The previous LIFE project made a national estimation. The new project extends the estimation to the European level;

LIFE10 ENV/IT/000397
H-REII DEMO



Beneficiary:

Type of beneficiary

Small and medium-sized enterprise

Name of beneficiary

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Marco BARESI

Duration of project:

24 months (01/01/2012 - 31/12/2013)

Total budget in euro:

4,448,876.00

EC contribution in euro with %:

851,938.00 (19.15 %)

Generic theme:

Reduction of emission of greenhouse gases

- Draft BREF and BAT schedules concerning the Integrated Pollution Prevention and Control Directive;
- Contribution to the development and demonstration of innovative policy approaches, technologies, methods and instruments to assist in the implementation of the Environmental Technologies Action Plan (ETAP), by involving environmental technology developers in the observatory;
- Draft action schedules to be inserted into the European Energy Efficiency Action Plan and the national plans for energy efficiency, and the estimation of the potential contribution to the EU's 20-20-20 objectives;
- Draft action schedules for the EU CO₂ reduction round tables on industrial processes;
- Draft legislative and license bills necessary for commissioning heat recovery power plants and simplifying practices; and
- Provide a basis for increasing associated employment and training environmental professionals.

Establishing a monitoring network to assess lowland forest and urban plantation in Lombardy and urban forest in Slovenia

Project background

The European Union's environmental objectives include the protection of forests and biodiversity. For this, deep knowledge of the status and evolution of artificial and natural urban and periurban forests is essential. In the last 30 years, such woodlands have been planted in the Lombardy region of Italy and in other European countries.

These woodlands are important because they are normally planted on agricultural land, on former industrial sites or degraded areas. These lowland and natural forests near urban and periurban areas provide important ecosystem services. For this reason, a system for monitoring the status of forest plantation and natural forests would be a strategic benefit, allowing the conservation of this natural heritage and guiding long-term sustainable forest management.

Project objectives

The EMoNFUr project will develop a monitoring system for assessing the status of artificial and natural urban and periurban forests, and to measure the adaptability of the new lowland forests to climate change. The project will provide parameters of ecological and environmental relevance, such as plant and animal biodiversity in lowland forests, carbon dioxide sequestration capacity and the ability to mitigate air temperatures.

The project will:

- Carry out preliminary monitoring of lowland (artificial and natural) urban and periurban forests in some representative sites in Lombardy and Slovenia (Osrednjeslovenska region);
- Map out the permanent monitoring network of urban and periurban forests in Lombardy and in Slovenia (Osrednjeslovenska-Ljubljana);
- Establish the first general proposal to establish a harmonised European monitoring network;
- Analyse the ecosystem services offered by artificial and natural urban and periurban forest lowland forests in Lombardy and in Osrednjeslovenska; and
- Build awareness locally about the importance of monitoring artificial and natural urban and periurban lowland forests, and understanding their role in mitigating climate change.

Expected results:

- Implementation of a scientific monitoring protocol, to be applied on sample plots in artificial and natural urban and periurban forests;

LIFE10 ENV/IT/000399

EMoNFUr



Beneficiary:

Type of beneficiary

Regional authority

Name of beneficiary

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Name of contact person

Enrico CALVO

Duration of project:

36 months (01/10/2011 - 30/09/2014)

Total budget in euro:

1,177,756.00

EC contribution in euro with %:

574,021.00 (48.74 %)

Generic theme:

Forest management - Soil and landscape protection - Desertification prevention

- Establishment of a permanent monitoring network in Lombardy and Slovenia;
- Creation of a permanent international project committee and user committee dealing with the monitoring of artificial and natural urban and periurban forests;
- Production of an online manual on the ecosystem services provided by artificial and natural urban and periurban forests in Lombardy and Slovenia, especially related to biodiversity, to mitigation of rising temperatures, to CO₂ sequestration, and to their tourism, recreational and social aspects;
- Definition of a set of monitoring indicators for assessment of the policies implemented in Lombardy and Slovenia for forests covering lowland or degraded urban and periurban areas; and
- Creation of a set of indicators to evaluate the impact of climate change on the artificial and natural forest ecosystems in urban and periurban areas.

Environmental recovery of degraded and desertified soils by a new treatment technology for land reconstruction

Project background

Soil is a non-renewable resource performing a crucial role in maintaining a sustainable environment whilst providing the necessary raw materials to support economic activities. Soil acts as a carbon sink and can contribute to offsetting carbon dioxide increases. But soil degradation is accelerating. According to the European Environment Agency, 17% of the EU's total land area is seriously eroded and nearly 75% of the soil in southern Europe is considered to possess low or very low organic matter content, indicating reduced biodiversity. This deterioration compromises the filtering and buffering capacity of soils, and increases the potential accumulation of pollutants by elevated concentrations of fertilisers and pesticides. Current work to tackle soil degradation focuses on rationalising or limiting soil use, or in using organic fertilisers and agricultural improvers. These approaches only partially limit the soil degradation process; a more comprehensive approach is needed.

Project objectives

The New Life project will demonstrate an innovative method based on the mechanical and chemical treatment of infertile soils. This combines soil mixing (exhausted soils mixed with other solid matrices) and soil disintegration processes with a subsequent reconstruction phase, resulting in an aggregate that has agronomic value. The technique will stabilise the organic matter in reclaimed soil by injecting humic and fulvic acids during the disruption phase. Treatment will allow the reclamation of degraded soil in unproductive areas whilst producing ground covering for re-vegetation and agro-forestry. This will reduce the need to bring in fertile soil, and will conserve natural resources. Moreover the solid matrices used in the mixing phase are mostly waste material (washed sand and gravel from quarry activities, waste from paper mills).

The project will be implemented over an area of 200 000 m² in the municipality of Piacenza, in the regional park of the river Trebbia. The land area targeted by the project is significantly degraded by compaction, loss of structure, lack of organic matter and sealing, and is thus an excellent test-bed for the proposed technology.

Expected results:

- A 20% increase in stable organic matter in soils and a 10% increase in humic and fulvic acids, excluding those added;

LIFE10 ENV/IT/000400

New Life



Beneficiary:

Type of beneficiary

Small and medium-sized enterprise

Name of beneficiary

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Duration of project:

61 months (01/10/2011 - 30/10/2016)

Total budget in euro:

4,025,473.00

EC contribution in euro with %:

1,929,837.00 (47.94 %)

Generic theme:

Forest management - Soil and landscape protection -
Desertification prevention

- Conversion of the soil structure from massive, laminated, multi-faceted angular and glomerular porous, thus reducing soil compaction;
- Increased water retention and heat capacity of treated soils;
- Increase in the fertility of treated soil;
- Increase in the depth of fertile soil used by vegetable species: average root depth will be increased by 100-150%, or about 80 to 100 cm (moderately high);
- Increase in diversity of plant species on the site;
- Increase in the aerobic heterotrophic bacterial population;
- Planting of at least 500 trees;
- Full restoration of 200 000 m² area and its conversion into a public park; and
- An increase in the protective capacity of the soil.

Ecological courtyards united for resources saving through smart technologies and life style

Project background

As European society has grown wealthier, it has increased its consumption of resources, especially in urban centres. The quantity of water, energy and resources needed by an average urban family has steadily increased. This in turn has increased urban dependence on external regions for inputs and as waste sinks. It has also led to an increase in greenhouse gas emissions and waste production, and has contributed to increased resource use.

Project objectives

The ECO Courts project aims to:

- Reduce the ecological footprint of urban families living in apartment blocks by promoting radical life-style changes, and by stimulating collective action and the adoption of small-scale and smart technologies and lifecycle thinking;
- Raise awareness among citizens and families about their resource consumption and about the possible benefits of collective action in communal residences;
- Raise awareness among property managers about their potential role as drivers of more environmentally conscious behaviour on the part of apartment block residents;
- Promote to public authorities and businesses the idea of residential buildings (and neighbourhoods) as complex systems that through collaboration and cohesion of the families living in them can contribute significantly to reducing urban resource consumption;
- Develop and test an IT and online system to support families in reducing their resource consumption;
- Monitor the implementation of the activities undertaken by families in order to collect statistical information for policy makers, to improve environmental legislation, create effective incentives, support the green economy and provide viable data on the resource-reduction potential of residential buildings.

Expected results:

- A 30% reduction in domestic water consumption, using methods such as rain water collection, diversion of water from kitchen to garden, installing water meters, aerators and water-flow reducers;
- A 15% reduction in domestic energy consumption, by increasing efficiency and reducing avoidable use;

LIFE10 ENV/IT/000401
ECO Courts



Beneficiary:

Type of beneficiary

Local authority

Name of beneficiary

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Name of contact person

Daniela LUISE

Duration of project:

38 months (01/10/2011- 30/11/2014)

Total budget in euro:

1,680,000.00

EC contribution in euro with %:

840,000.00 (50.00 %)

Generic theme:

Eco-labelling - Eco-market - Consumer awareness - Green public procurement

- A 15% reduction in waste production by promoting reuse, as provided for in the Waste Framework Directive (2008/98/EC);
- An increase in environmental awareness among target families and in their commitment to sustainability. The goal is to directly contact between 10 000 and 15 000 families during the project.

These results will be obtained by fostering mutual and collective lifestyles, the adoption of small-scale and local technologies, and lifecycle thinking.

No more organic waste. A new integrated system to eliminate organic waste in the organised large scale distribution

Project background

The EU generates 88 million tonnes/yr of biodegradable organic waste (BOW) material (food waste, garden and public parks waste). The average citizen therefore generates 150 kg/yr of BOW. If sent to landfill, biodegradable waste releases noxious substances as a result of natural degradation, causing soil and groundwater pollution and spreading large amounts of the greenhouse gas, methane. The EU Landfill Directive" (1999/31/CE) requires that the amount of biodegradable organic waste be reduced by 65% compared to 1995 levels, by 2016.

Project objectives

The NOW project's overall objective is to promote the prevention, recovery and recycling of waste produced by organised large-scale distribution, with a particular focus on organic (i.e. food) waste and thus contributing to reducing greenhouse gas emissions.

Specific objectives are to:

- Promote and implement a new integrated system for the organic waste management of organised large-scale distribution involving local authorities and representatives of distribution groups;
- Improve the waste separation systems and amounts of non-separated waste through the treatment of organic waste;
- Promote innovative ways to allow most of the organic waste that is normally discarded by a large-scale distribution outlet to be recovered and reused (e.g. donated or used for energy and agricultural purposes);
- Promote the recovery of specific waste fractions from large-scale distribution, such as packaging, wood, plastic and waste electrical and electronic equipment (WEEE), transforming them into a product that can be reused through the definition of places and storage equipment and collection methods;
- Develop a network of local relationships aimed at recovering and donating food;
- Promote the transferability of this innovative system by involving large numbers of supermarkets and department stores during project implementation;
- Increase public and private stakeholders' awareness of the environmental impact of the proposed actions and on the importance of waste prevention, recovery and recycling; and
- Update environmental guidelines and regulations to include the proposed system.

LIFE10 ENV/IT/000404
NOW



Beneficiary:

Type of beneficiary

Small and medium-sized enterprise

Name of beneficiary

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Name of contact person

Anna BRESCIANINI

Duration of project:

39 months (01/10/2011 - 31/12/2014)

Total budget in euro:

1,920,998.00

EC contribution in euro with %:

687,826.00 (35.81 %)

Generic theme:

Municipal waste (including household and commercial)

Expected results:

- The design and implementation of individual integrated systems for managing the reuse of waste fractions for 25 outlets;
- Integration with the organic collection service of urban waste municipalities for eight outlets;
- A 10-20% reduction in total waste management costs per outlet, and savings for the municipalities or waste collection companies of up to 10%;
- Selection of a total of 6 000 tonnes/yr of waste (2 000 tonnes/yr of organic waste);
- A 20% (600 tonnes) increase per outlet of separated waste material;
- A 70-80% reduction in undifferentiated waste;
- 100 tonnes/yr of BOW to be reused in composting or energy production plants;
- 200 tonnes/yr of pet food waste to be reused by dog and cat pounds and breeders;
- 1 500 tonnes/yr of unsold food to be donated to Cauto's 'Social Pantry'; and
- The reuse of 110 tonnes/yr of wood and plastic packaging and 10 tonnes/yr of WEEE.

Quiet areas definition and management in action plans

Project background

A range of studies have demonstrated that noise influences our sense of our social surrounding. EU Directive 49/2002/CE on Environmental Noise (END) defines a "Quiet Area" (QA) as an area that is delimited by a competent authority and is not exposed to a noise above a certain threshold (set by the Member State), from any noise source. This definition is not clear enough to make an appropriate assessment and manage QAs in an urban environment. Current practices for the selection, assessment and management of QAs in EU Countries, though regulated by the END Directive, appear to be extremely fragmented and varied. Each country has adopted a set of strategies related to its specific context, which makes it difficult to transfer strategies among EU countries.

Project objectives

The main objective of the QUADMAP project is to develop a harmonised methodology for the selection and quantitative and qualitative assessment management of urban QAs. Data collection will be carried out in Belgium, France Germany, Italy, the Netherlands, Norway, Portugal, Spain and the UK, and pilot areas, where interventions will be implemented, will be located in Italy, the Netherlands and Spain. A harmonised approach will lead to a completely new monitoring tool, which will make it possible to monitor the QA management of Member States on the basis of common QA indicators.

Expected results:

- Guidelines on a harmonised methodology for the selection, assessment and management (action planning) of QAs. This will increase the success of QA management with respect to current procedures and will provide a good basis for the review of current directives;
- A publicly available database, comprising a comprehensive list of collected and studied methodologies, highlighting their limitations;
- The database will also contain survey results of citizens' acceptance of QAs, which will give users access to historical and geographical data on the successes and failures of END Directive derived applications for QAs - the first known survey on the real state of QA management in the EU; and

LIFE10 ENV/IT/000407
QUADMAP



Beneficiary:

Type of beneficiary

University

Name of beneficiary

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Name of contact person

Monica CARFAGNI

Duration of project:

37 months (01/09/2011 - 30/09/2014)

Total budget in euro:

2,369,262.00

EC contribution in euro with %:

934,880.00 (39.46 %)

Generic theme:

Air quality management and noise abatement

- All field data employed for case studies will be published, along with application examples (design solutions). They will provide a tuition tool, which will reduce the learning curve and minimise the time required for the adoption of the new methodology.

Extreme energyfree valorisation of copper metallurgical waste in heating elements and semiconductive nanoceramic enamels

Project background

For each kilo of copper obtained, 2.2 kg of waste slag is produced, amounting to 5.56 million tonnes/yr of waste slag in Europe. Despite its high iron content, this slag is currently disposed of in landfills, further processed as inert material, or used as an abrasive in industrial processes, an unsustainable solution. However, because it is composed of iron oxides and silicates, the slag has semi-conductive and mild ferromagnetic properties and could be used to produce innovative advanced materials for heating applications, substituting materials with much higher embodied energy, and bringing environmental benefits.

Project objectives

The Waste3 project's aim is to convert primary copper metallurgical waste into heating elements and semi-conductive enamels for residential applications. To do this, a small-scale pilot production line, able to process 200 kg/day of slag, will be constructed.

The project also aims to develop from the slag new materials for residential use, in particular:

- Tubular heat-resistant elements for ovens and small electrical appliances;
- Floor elements for residential heating, to substitute conventional wall-mounted elements; and
- Plates or auxiliary heating elements for microwave heating of food.

Thirdly, the project will establish a separation process to recover iron-silicate and oxide rich granules, and to convert them into one of the aforementioned products.

Expected results:

The technology proposed by Waste3 will allow an iron-rich industrial waste to be converted into safe products for construction and electrical appliances.

Expected environmental benefits:

- Production of a test series of new products containing more than 80% of copper metallurgical waste by weight;
- Substitution of higher embodied energy materials, such as molybdenum disilicide, in heating elements;
- Development of high-performance and energy-saving materials, such as electrical systems for residential heating; and

LIFE10 ENV/IT/000419

Waste3



Beneficiary:

Type of beneficiary

Small and medium-sized enterprise

Name of beneficiary

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Name of contact person

Vito Antonio REMIGIO

Duration of project:

36 months (01/10/2011 - 30/09/2014)

Total budget in euro:

3,315,264.00

EC contribution in euro with %:

1,576,632.00 (50.00 %)

Generic theme:

Industrial waste (including manufacturing)

- An increase in the efficiency of microwave ovens through the use of the newly generated materials.

Expected technical improvements:

- Lower cost heating elements, because of the much lower raw material costs, availability of pre-milled products and the low-energy processing;
- High abrasion and wear resistance, particularly important for coverings and floor applications;
- Safe installation in environments where there is risk of explosion, because of the antistatic properties of the coverings;
- Rapid heating of the new materials with low applied currents;
- Good thermal shock resistance, allowing rapid heating, or fast cooking when used in microwave ovens; and
- Lower costs and higher productivity in finishing operations.

Better Regulation Aimed at Valorising Emas

Project background

The European Commission and other EU institutions have promoted a number of initiatives in recent years to codify, consolidate and simplify existing EU legislation and to evaluate better the likely economic, social and environmental impacts of new regulation. Implementing regulations and laws entails costs. Some costs are linked to obligations to provide information, either to public or private parties.

Some legal obligations to provide information have become excessively complicated, time-consuming or useless. For this reason, small and medium-sized enterprises (SMEs) in particular find it harder to comply with environmental legislation. By reducing unnecessary reporting requirements, businesses can freed up to spend more time on their core activities, which might reduce production costs and allow additional investment and innovation, which in turn should improve productivity and competitiveness.

Project objectives

The B.R.A.V.E. project aims to support the full integration of EMAS (and of other voluntary certification schemes, such as the EU Ecolabel) in the environmental legislation of EU Member States. This will facilitate EMAS implementation by all organisations (better regulation) and remove, reduce and simplify the administrative burdens for EMAS-registered organisations, as well as for companies adopting the EU Ecolabel or other forms of certification. This initiative will encourage the adoption and dissemination of voluntary environmental certification (regulatory relief).

Expected results:

The main result of the B.R.A.V.E. project will be the identification and development of effective measures for better regulation and regulatory relief. The usefulness and efficiency of these measures will be tested.

The specific results will be:

- Regulation analysis including recommendations for considering EMAS registration (and other EU voluntary certification schemes) in the development of new legislation and revision of existing legislation at national (Italy and Spain) and regional levels;
- The setting up of seven regional working groups, two national working groups, one European work-

LIFE10 ENV/IT/000423

B.R.A.V.E.



Beneficiary:

Type of beneficiary

Training centre

Name of beneficiary

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Name of contact person

Marco FREY

Duration of project:

36 months (01/10/2011 - 30/09/2014)

Total budget in euro:

2,219,679.00

EC contribution in euro with %:

1,109,840.00 (50.00 %)

Generic theme:

Integrated environment management

ing group and seven regional consultation boards: these groups will work on the definition process, and will build consensus for the proposed measures;

- A report that will contain both the better regulation and regulatory relief proposals related to the existing legislative framework, covering permit procedures, control and inspection procedures, environmental taxes and administrative fee reductions;
- A list of at least 35 proposals to be tested in the regions involved in the B.R.A.V.E. project, accompanied by a list of the competent authorities and private companies available to be involved in the testing phase; and
- A guidance tool for EMAS-based regulation and better regulatory relief.

Replacement of toxic lead compounds by new non-toxic substitutes as brilliant aid agent in polychromatic glazes

Project background

Over the past decade, the presence of lead in glazes for ceramics has posed numerous health risks for workers exposed to high lead concentrations (lead poisoning, neurological problems). Recent studies show that exposure to lead compounds may lead to infertility, even at low concentrations, and to other serious health problems. Although more severe restrictions on the use of lead have been introduced, it remains an essential element for glazers.

Project objectives

The main objective of the LEAD-COLOURED LEAD-FREE project is to eliminate lead compounds from the production of glazes with high aesthetic and technical value. This will be achieved by using a two-stage melting process, replacing lead with boron, while minimising boron volatilisation.

The project will set up a pilot system involving an innovative melting process with two separate stages at two different temperature levels (a melting stage at low temperature for boron processing and a rotary melting stage for subsequent mixing with other glaze elements). The project will assess the options for using this industrial process on a larger scale, without increasing costs, in order to make the technique more widely applicable in the ceramics sector.

A further goal will be to minimise boron losses during the production process. These losses could jeopardise the environmental benefits arising from the elimination of lead compounds.

The project will also undertake measures to develop awareness among customers and suppliers about the opportunities for making production processes more eco-sustainable without reducing the quality of the products, or their aesthetic characteristics.

Expected results:

The results of the LEAD-COLOURED LEAD-FREE project will include:

- The elimination of lead compounds from the production of glazes, while maintaining high quality and aesthetic standards of glazed products;
- Demonstration of an industrial process that minimises the volatilisation of boron. Low volatilisation

LIFE10 ENV/IT/000427
LEAD-COLOURED LEAD-FREE



Beneficiary:

Type of beneficiary

Small and medium-sized enterprise

Name of beneficiary

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Name of contact person

Filippo DEL SANTE

Duration of project:

24 months (01/09/2011 - 31/08/2013)

Total budget in euro:

1,730,716.00

EC contribution in euro with %:

775,108.00 (44.79 %)

Generic theme:

Clean technologies

tion of boron will reduce the need to add excessive quantities of boron compounds into the raw material mixture; and

- Extension of the storage time of low flux ceramic frit with high boron content.

Currently, storing boron compounds presents a technical problem because of their high water solubility and reaction with other materials. However, the high boron pre-glaze stabilises boron and keeps it from being released into the environment when the frit comes into contact with humidity or water.

The project will also optimise production by loading the kiln efficiently and stocking the product until it is no longer needed for the preparation of new glazes. This will generate economic benefits by protecting operators from fluctuations in the price of boron compounds.

Use of graphite and biolubricants stabilized by engineered active surfaces for the fluxing of transmission and gearing

Project background

Lubricants of mineral origin have a significant negative environmental impact. For instance, the production of virgin base oil requires 1 156 kg CO₂/mg oil, compared with 676 kg CO₂/mg oil for recycled (regenerated) oil.

Considering that global lubricant demand was estimated to be 41.7 million tonnes in 2010, even the best available technology – regeneration - still involves the production of more than 28 million tonnes/yr of CO₂. An alternative would be to replace mineral lubricating oils with more environmentally-friendly products, such as solid-state lubricants (e.g. graphite and talc) and 'bio-lubricants', i.e. oils of natural origin, usually extracted from crops, made of triglycerides.

Project objectives

The main objective of the project is to demonstrate the complete replacement of synthetic lubricants for the pre-treatment of transmissions and gearings, with solid state graphite lubricant and fluid bio-lubricants. The project will set up a manufacturing cycle that produces very little waste, reduces the consumption and dispersion of lubricants and has a low carbon footprint. The proposed process will also involve the recovery of glycerol from other manufacturing processes, to be used as a solvent in which to suspend graphite particles.

These goals will be accomplished by a series of sub-projects, which will investigate the reversible long-term stabilisation of bio-lubricants against bacterial and fungicidal attacks; improvement of the rheological properties of bio-lubricants; and realisation of a closed circuit in which stable suspensions of graphite powders, in recovered glycerol, are injected into the transmissions and subsequently removed and re-collected prior to the insertion of bio-lubricants.

The project will construct a pilot production line, where the use of such lubricants will lead to an average reduction of 4 tonnes/yr of CO₂-equivalent (corresponding to the production/regeneration of 4 000 litres/yr of mineral oil); the elimination of harmful compounds such as highly refined mineral oils or zinc-alkyl-di-tio-phosphates; and the elimination of environmental pollution deriving from mineral oil spills.

LIFE10 ENV/IT/000428

Clash Oil



Beneficiary:

Type of beneficiary

Large enterprise

Name of beneficiary

Argo Tractors SpA

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Name of contact person

Matteo GUERRA

Duration of project:

36 months (01/10/2011 - 30/09/2014)

Total budget in euro:

2,142,346.00

EC contribution in euro with %:

967,173.00 (50.00 %)

Generic theme:

Cleaner technologies

Expected results:

- Complete substitution of synthetic oils in a demonstration process with bio-lubricants, which are 70-100% biodegradable;
- Recovery of 4 000 litres/yr of glycerol per fluxing site;
- Reduction of CO₂ emissions; Reduction of gaseous emissions because of the lower volatility of bio-lubricants (estimated 20% less);
- Lower oil consumption (average 60 litres per transmission per change);
- Less polluting and safer oils, containing neither harmful highly-refined mineral oils nor zinc-alkyldi-tio-phosphates;
- Longer lubricant service life (+20%) as a result of increased thermal stability; and
- Lower lubricant losses as a result of the lower volatility of bio-lubricants and the high temperature stability of graphite in inert gas.

Demonstration of the feasibility of electric vehicles towards climate change mitigation

Project background

European Union countries have promoted sustainable development since the mid-1990s. In particular, the EU signed the Kyoto Protocol, which aims to curb carbon dioxide emissions at national scale and worldwide. Electric vehicles are increasingly seen as a valuable tool to achieve emissions reductions. The technical features of electric cars are progressively improving, making them more accessible to a wider constituency of car drivers.

Project objectives

The DemoEV project will conduct the first demonstration action deploying electric vehicles (EV) in Malta, distributing a sample of vehicles to volunteers. The test drivers will be carefully monitored to generate data that will enable the assessment of the potential for carbon savings in comparison with standard mobility habits and trends. A key monitoring distinction will be between EV charged via the electricity grid, and EV charged via photovoltaic (PV) panels.

The specific objectives of the project are as follows:

- To study if carbon neutrality can be achieved by recharging second-generation electric vehicles using photovoltaic systems installed on buildings;
- To evaluate the actual environmental efficiency of second-generation electric vehicles;
- To convince the target audience to switch to electromobility as opposed to the standard, highly polluting, conventional-fuel vehicles; and
- To study the environmental and economic efficiency of different methods of recharging second-generation electric vehicles.

The primary aim of the study will be to evaluate if PV panels installed on buildings can produce enough energy to recharge an electric vehicle and thus create carbon neutral transportation. The study will involve 24 second-generation fully electric vehicles, distributed among volunteers from private households, commercial delivery companies and government bodies. The selection of the volunteers will ensure that the vehicles will be used for very different specific purposes. Households will test Class B private cars used for personal transport. Delivery companies will test Class C light-goods vans used for delivering goods to shops in Valletta.

LIFE10 ENV/MT/000088
DemoEV



Beneficiary:

Type of beneficiary

National authority

Name of beneficiary

Ministry for Resources and Rural Affairs

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Stefan CACHIA

Duration of project:

40 months (01/09/2011 - 31/12/2014)

Total budget in euro:

1,888,010.00

EC contribution in euro with %:

667,871.00 (35.37 %)

Generic theme:

Reduction of emission of greenhouse gases

Expected results:

The main project result will be a database detailing the daily driving habits of volunteers, and the related carbon impacts, which will be compared with benchmark data obtained during a three-month period prior to the start of the project. Comparative analysis of this data will then include:

- Energy efficiency;
- Unit costs of electricity compared with fossil fuels (tank-to-wheel);
- Comparative analysis of charging data from PV-installed infrastructure compared with charging from the standard grid; and
- Comparison of carbon savings from charging using the standard grid and charging using the PV infrastructure.

The project overall will be an important demonstration underpinning EV take-up in Malta.

Aim to realise 95% ELV-recycling in the Netherlands by means of post shredder technology

Project background

Every year in Europe, some 15 million cars reach the end of their lives and become end-of-life vehicles (ELVs). After dismantling of the vehicle into parts and shredding, what is left is known as the automotive shredder residue (ASR). With some 200 kg of ASR per ELV, this roughly equates to 3 million tonnes/yr of waste in Europe that is mostly being dumped in landfills. The European ELV Directive (2000/53/EC) requires Member States to achieve a reuse and recovery rate of 95% for all ELVs by average weight by 2015.

Since ASR typically represents 14-20% of the ELV weight - depending on the amount of prior manual dismantling - it is widely acknowledged that developing post-shredder technologies (PST) for treating ASR is crucial to reaching the 95% target. There are two main categories of PST: mechanical sorting of the waste into different fractions that can be recycled and sold; and thermal treatment of the waste stream to generate feedstocks for energy generation.

Mechanical sorting is generally recognised to be the best option from an environmental, technical and economic point of view. The VW-SiCon process is an innovative mechanical process that deals with ASR and mixed scrap waste. One small-scale plant is currently operating in Belgium, with a capacity of 6 000-8 000 tonnes/yr. However, the process currently produces outputs that are highly dependent on other markets - such as the growth of sewage sludge incineration - which presents a significant barrier to development of the technology.

Project objectives

The PST project's main objective is to reach an ELV recycling rate of 95% by the end of 2014 and thus allow the Netherlands to comply with the ELV Directive (2000/53/EC). It hopes to do this by demonstrating and optimising a PST plant using the VW-SiCon process in the Dutch province of Gelderland.

The project aims to demonstrate the technically and financially sound operation of the VW-SiCon process, verifying that the operational and product-quality specifications have been met according to the time schedule and are still met during continuous operation. It will periodically modify and fine-tune the different modules to attain a gradual improvement in the recycling rate of the overall process.

LIFE10 ENV/NL/000027
PST



Beneficiary:

Type of beneficiary

Large enterprise

Name of beneficiary

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Name of contact person

Hans VAN DER GREEF

Duration of project:

48 months (01/09/2011 - 01/09/2015)

Total budget in euro:

2,050,697.00

EC contribution in euro with %:

991,299.00 (48.34 %)

Generic theme:

End-of-Life Vehicles (ELV's) and tyres

The team will concurrently work to develop multiple added-value applications for each output from the sorting process. Consistent investment in new applications is needed to ensure sufficient, robust and reliable markets for the end products. It will thus seek to explore multiple outlets per product, favouring those with the highest added value - for example, prioritising material recycling over energy recovery.

Ultimately the project hopes to assist in European-wide compliance with the ELV Directive through demonstration of a good practice technology.

Expected results:

- Demonstration of the technical feasibility of the VW-SiCon process for mechanical sorting of ASR;
- Demonstration of its economic feasibility, through identification and development of at least two robust and high-value markets for each output; and
- Gradual improvement of the ELV recycling rate from 85% towards 95%.

Waste water treatment as energy and mineral recovery utility

Project background

Phosphates are an essential precondition for food production. However, present rates of consumption suggest that they risk being exhausted within 50-100 years. Globally, 14.9 million tonnes/yr of phosphate are abstracted from natural resources. On average, 20% of this abstraction ends up in wastewater.

The design and development of wastewater treatment plants (WWTTPs) has been primarily aimed at optimising the efficiency of wastewater treatment. However, recently, it has started to be recognised that municipal wastewater might be a valuable source of energy and minerals such as phosphates.

The Dutch water boards have demonstrated that methane production by digestion of sludge can alter the energy profile of the wastewater treatment process. However, the economic costs involved outweigh the benefits, presenting a major obstacle to its implementation.

Project objectives

The main objective of the OMZET project is to develop a new approach to wastewater treatment that will demonstrate net energy production, optimal recovery of phosphates and economic viability. This will involve implementing an extra de-nitrification process for the reject water coming from sludge dewatering.

The beneficiary will seek to demonstrate its new approach in a municipal wastewater treatment facility. It specifically aims to increase the energy self-sufficiency of the process and recover phosphate, whilst maintaining the high effluent quality. The hydrolysis of biomass will also lead to a significant reduction in sludge production and the associated costs of transporting and incinerating sludge.

The project aims to demonstrate the cost effectiveness and economic viability of the OMZET process by reducing the operational costs for wastewater treatment by 15%. It also expects to demonstrate the high replication possibilities for OMZET in both new and existing wastewater treatment plants across Europe. The project will network to disseminate its results and awareness of the new process. It also hopes to contribute to the achievement of European objectives

LIFE10 ENV/NL/000028
OMZET



Beneficiary:

Type of beneficiary

Public enterprise

Name of beneficiary

Waterschap Vallei en Eem

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Name of contact person

Henry VAN VELDHUIZEN

Duration of project:

64 months (01/09/2011 - 31/12/2016)

Total budget in euro:

14,447,825.00

EC contribution in euro with %:

1,552,512.00 (10.75 %)

Generic theme:

Waste water treatment

and the development of policy with regard to: waste reduction; recovery of phosphate and limiting of the exhaustion of natural resources; limiting the environmental footprint of WWTTPs; reducing CO₂ and other greenhouse gas emissions; and improving surface water quality, as required by the Water Framework Directive.

Expected results:

- Increase biogas production by 60%;
- Recover up to 80% of phosphates;
- Reduce sludge production by 17%;
- Reduce WWTTP operational costs by 15%; and
- Maintain high effluent - and therefore surface water - quality.

New soil improvement products for reducing the pollution of soils and waters and revitalizing the soil system

Project background

The excessive application of mineral fertilisers and pesticides results in the degradation of soils. Agriculture intensification also causes an overall decrease in soil fertility. It has been estimated for example, that because of agricultural intensification, the fertility of soils is being reduced by 2.5%/yr.

The intensive cultivation of crops often use 'soil-less' methods, which call for higher doses of fertilisers than in-field production. For example, in greenhouse tomato production the dosage of nitrogen fertilisers can be as high as 3 000 kg N/ha; whereas the in-field production usage is around 150 kg N/ha. After the production cycle, the subsoils have to be used and are often disposed of in an inappropriate way. This poses a significant pollution risk for the soils, groundwaters and natural environment. In the EU, nearly 500 000 m³/yr of subsoil is disposed of in landfill sites. Therefore, the reduction of the amount of subsoil disposed of in this way is an important environmental protection priority.

Project objectives

The main goal of the Biorewit project is to develop innovative technologies for new soil improvers and soil-less substrates for greenhouse cultivation, applied in comprehensive agricultural research. These will include:

- The use of natural fibrous wastes (e.g. straw, sawdust, wool, cotton) for the production of soil improvers;
- The use of natural fibrous wastes for the production of biodegradable soil-less substrates; and
- The application of new fibrous soil bio-activators in the cultivation of vegetables on demonstration plots and on experimental fields for cultivation.

Research on soil-less cultivation of tomato and cucumbers will also be carried out on new fibrous substrates in greenhouses and plastic tunnels at RIVC.

Expected results:

- A reduction of the pollution of the soil and water systems through gradual replacement of mineral fertilisers with new soil eco-activators – the target is at least a 20% decrease in mineral nutrient emissions from greenhouse production to groundwater;
- An overall gradual elimination of mineral nutrient emissions from drain waters of soil-less cultures.

LIFE10 ENV/PL/000661

Biorewit



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Name of contact person

Stanisław KANISZEWSKI

Duration of project:

36 months (01/01/2012 - 31/12/2014)

Total budget in euro:

1,863,195.00

EC contribution in euro with %:

926,597.00 (49.73%)

Generic theme:

Diffuse and dispersed sources of pollution

(In Poland, the amount of recovered nutrients from greenhouse drainage waters amounts to 120 000 tonnes/yr (i.e. an area of 60 000 ha). An associated significant decrease of eutrophication of ground and lake water is expected;

- A gradual process of enrichment of the soil in the organic material through the application of plant biodegradable matter included in the eco-activators – the target is to increase the humus content at least four times more than by mineral fertilisation;
- A reduction of non-biodegradable bulk waste on landfill sites;
- A target increase of soil water retention capacity by up to 30% and of drying up time of the soil by 100% as a result of the application of eco-activators to the soil environment; and
- An improvement in the quality of farm products by avoiding the risk of over fertilising some crops with nitrogen.

Demonstration Installation for manufacture of lightweight aggregate from sewage sludge and waste silica

Project background

Poland produces more than 1.1 million tonnes/yr of municipal and industrial sewage sludge. Most of this is either sent to landfill, or used for composting or fertilisation of soil. A lack of incinerators means that the combustion of sewage sludge is not a feasible method of disposal in Poland. Therefore, it is important to examine other sewage disposal technologies.

The beneficiary has already developed a new method of disposal of sewage sludge that uses a variety of wastes and neutralises them in a single process to produce various lightweight aggregates (which are used in construction).

Project objectives

The main objective of the OIM-WASTE project is to demonstrate the operation of an innovative technology for waste management of selected groups, including sewage sludge, for the production of various lightweight aggregate products.

Other, important objectives are:

- To construct a pilot demonstration installation - to determine the technical requirements to start the full-scale production of lightweight aggregates on the basis of mineral waste and municipal sewage sludge; and
- To conduct an information campaign about the developed technology targeting the widest possible audience of both potential project stakeholders, as well as the general public.

Expected results:

The main result of the project will be the technical verification of the technology: The technology already developed and tested by the beneficiary at laboratory-scale, will now be tested at industrial-scale. The implementation of the project should also increase of public awareness about the problem of managing sewage sludge.

Other expected results include:

- A prototype demonstration installation; and
- Various dissemination material and activities – including participation at three trade events, the organisation of information and demonstration meetings and the publication of 500 leaflets and 250 brochures.

LIFE10 ENV/PL/000662
OIM-WASTE



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

Institute of Mechanised Construction and Rock Mining

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Name of contact person

Robert PODGÓRZAK

Duration of project:

39 months (01/10/2011 - 31/12/2014)

Total budget in euro:

2,222,366.00

EC contribution in euro with %:

1,111,183.00 (50.00 %)

Generic theme:

Municipal waste (including household and commercial)

Establish an electronic system for exchanging data on shipments of waste

Project background

Romania faces difficulties in enforcing the EC Regulation no. 1013/2006 on shipments of waste. According to the Romanian National Environmental Guard, five illegal waste shipments were detected in 2009. Waste has also entered Romania as a secondary product and thus avoided the formalities of notification. Waste management is also hindered by a lack of information regarding policies and a low institutional capacity compared to other Member States. A major cause of these problems is the absence of a website in English with information on transboundary shipments of waste. As a result, foreign companies cannot access required information in real-time.

Project objectives

The project aims to create an electronic system for tracking movements of waste into, within and out of Romania. The new system for exchanging data on shipments of waste will reduce administrative labour and speed up information exchange between waste operators and state authorities.

Specific objectives of the project are:

- Registration of stakeholders;
- Technical support to the competent authorities by developing a software platform for storing and accessing information on shipments of waste and an IT infrastructure platform for tracing movements;
- Simplification of the management practices relating to the shipments of waste across borders;
- Real-time verification of waste movements;
- The establishment of a monitoring procedure for waste shipments; and
- Networking with other projects.

Expected results:

The main expected result is a computerised system to register waste shipments. This will reduce the incidence of illegal shipments whilst reducing paperwork. The project also expects to:

- Update the national database of recovery facilities and their capacities;
- Improve the quality of data that are reported by different facilities as treated waste;
- Increase by up to 70% the number of illegally shipments of waste detected;
- Promote the electronic system in order to exchange information and data on waste shipments;

LIFE10 ENV/RO/000726
ELSYS



Beneficiary:

Type of beneficiary

National authority

Name of beneficiary

Romanian Ministry of Environment and Forests

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Name of contact person

Flavius ARDELEAN

Duration of project:

36 months (01/10/2011 - 30/09/2014)

Total budget in euro:

1,198,926.00

EC contribution in euro with %:

563,637.00 (47.01 %)

Generic theme:

General: Waste management

- Reduce by up to 20% the time needed to process the documents involved in the waste shipments procedure;
- Inform more than 28 recovery facilities operators about the implementation of the new system;
- Connect at least 10 of the most important recovery facilities to the system in order to apply for electronic data exchange;
- Connect at least five Romanian border points to the system in order to facilitate monitoring of shipments;
- Train 112 personnel from the Romanian authorities who are involved in waste shipments procedures; and
- Consolidate the capacity of the Romanian authorities to implement and enforce the provisions of EC Regulation no. 1013/2006 after the end of the transitional period.

Valuating the demolition and construction waste in Buzau County, Romania

Project background

Buzau County in Romania generates an estimated 80 000-90 000 tonnes/yr of construction and demolition waste (CDW). This figures is not broken down into sub-categories of CDW.

Project objectives

The VAL-C&DV project aims to develop a functional and effective demolition waste management system through detailed knowledge of the current situation in terms of generation, collection, recovery and disposal of CDW in Buzau County.

The project will first analyse the quantity and composition of all categories of waste that are within the scope of the project (i.e. categories pertaining to class 17 of the European Waste List, generated at the level of Buzau County) in order to be able to carry out a correct assessment of the possibility of recovery. A detailed analysis (Lifecycle Assessment) of the impact on the environment of secondary raw materials generated from treated CDW will be carried out. The project will also ensure the development of a code of best practices concerning the separate collection at source of construction and demolition waste. The demonstration value of the project will be highlighted by the implementation of a pilot project in Buzau County.

The pilot will carry out the following activities:

- Commissioning of a mechanical waste treatment facility for CDW;
- Collection and transport of CDW to the new treatment facility;
- Development of a methodology for reuse of secondary raw materials-generated treated CDW; and
- Development of a proposal for a technical norm which would include the minimum technical criteria and standards for the recovery of products resulting from the treatment of construction and demolition waste.

Finally, the project will aim to develop a coherent decision-making system by classifying the responsibilities of all the factors involved at county level in the construction and demolition waste management system. It will fulfill all legal objectives in terms of CDW recovery in Buzau County, including the recovery of the type of waste that is disposed of in a non-compliant manner.

LIFE10 ENV/RO/000727
VAL-C&DW



Beneficiary:

Type of beneficiary

Regional authority

Name of beneficiary

Buzau County Council

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Name of contact person

Gabriela DRAGULESCU

Duration of project:

25 months (01/09/2011 - 30/09/2013)

Total budget in euro:

1,431,882.00

EC contribution in euro with %:

580,941.00 (40.57 %)

Generic theme:

Construction and demolition waste

Expected results:

- Development of a database concerning the management of CDW at county level;
- Creation of a code of best practices for the management of CDW that covers the three sectors considered to be significant for solving this issue: households, construction sites and the local authority, which is responsible for CDW regulation;
- Commissioning of a waste treatment facility;
- Development of an interactive web application concerning the market for CDW and materials resulting from its treatment;
- Proposal of a methodology for the ceasing of the waste status of materials resulting from the treatment of CDW (also including separate collection); and
- Proposal of a technical norm (or guideline) concerning the minimum criteria that have to be complied with by the materials resulting from the treatment of CDW in order to be able to be used in different activities.

New building materials by eco-sustainable recycling of industrial wastes

Project background

Romanian industry generates significant volumes of waste – the Turceni power station alone dumps some 700 000 tonnes/yr of fly ash; the Slobozia oil drilling company dumps some 100 000 tonnes/yr of drilling fluids; and the Bals City metallurgical facility dumps some 5 000 tonnes/yr of slag.

In Gorj county, there are two large lignite-fired power stations. These generate significant quantities of ash and have a major impact on the environment as a result.

Project objectives

The project aims to obtain ceramic composites from fly-ash and building materials from drilling fluids and slag, and to use them in the impermeable layers of roads.

It aims to demonstrate the viability of a novel technology for the recycling of fly ash, drilled solid wastes and steelmaking slag.

Specific objectives are to:

- Select and fully characterise the types of wastes (fly ash, drilled solid wastes, metallurgical slag);
- Identify potential secondary raw materials that could replace primary ones;
- Formulate optimal methods and technologies for processing the target wastes;
- Design and build an improved waste processing pilot plant;
- Test at pilot scale the process for manufacturing ceramic composites from secondary materials; and
- Demonstrate that the use of natural resources and energy can be significantly reduced by harnessing the potential of the target waste streams, thereby achieving sustainable waste management.

Expected results:

The project will adapt an existing pilot unit to demonstrate the viability of recycling wastes into high added value products; this new innovation will be disseminated across the EU to encourage its widespread use. In addition, the project will:

- Reduce the amount of waste going to landfill;
- Save natural resources by recycling fly-ash, oil drilled wastes and metallurgical slag instead of using raw minerals;
- Save energy with respect to traditional processes for producing building materials;

LIFE10 ENV/RO/000729
EcoWASTES



Beneficiary:

Type of beneficiary

University

Name of beneficiary

Universitatea "Constantin Brâncuși" din Târgu Jiu

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Luminita Georgeta POPESCU

Duration of project:

32 months (01/09/2011 - 30/04/2014)

Total budget in euro:

1,043,725.00

EC contribution in euro with %:

475,462.00 (45.55 %)

Generic theme:

Industrial waste (including manufacturing)

- Reduce the carbon footprint associated with the production of building materials, and reduce the energy consumed in conventional raw materials recovery (clay, clay sand, feldspar, etc.);
- Recover and recycle a total of 50% of the target wastes;
- Demonstrate that it is possible to replace with fly ash 30-50% of the natural sand used in manufacturing ceramic products;
- Show that 100 000 tonnes/yr of well-drilled solids (cake) could be used to manufacture bricks in place of clay. Since preliminary milling is not required, this would result in a 24 000 tonnes/yr reduction in CO₂ emissions and cost savings at building materials factories; and
- Demonstrate that some 500 000 tonnes/yr of metallurgical slag (with 50% CaO – quicklime - content an average) could be used in cement manufacturing, replacing 270 000 tonnes/yr of quicklime extraction and saving 280 000 tonnes/yr in CO₂ emissions.

Microwaves ecofriendly alternative for a safe treatment of medical waste

Project background

Since EU accession in 2007, Romania and Bulgaria have been obliged to treat all hospital waste. In 2008, the healthcare sector in Romania generated 33 730 tonnes of hospital waste, of which some 10 427 tonnes was dangerous infectious waste, and 2 491 tonnes was cutting/pricking waste.

Currently, 80 companies operating in Romania are authorised to transport hazardous medical waste. Given Romania's obligations under EU directives transposed into national legislation, 58 incinerators were closed in 2008. As a result, 18% more healthcare units have externalised the management of hazardous medical waste – 15% through neutralisation and 3% through incineration. However, in Romania, only three incinerators comply with the standards required by EU directives.

Project objectives

The project aims to demonstrate the feasibility of microwave technology for the treatment of medical waste. It will design and produce a prototype to treat medical waste so that it is non-infectious and safe to dispose of without special handling.

By applying this technology on a larger scale, it is expected to reach a treatment rate of 6 000 tonnes/yr in Romania and 3 000 tonnes/yr in Bulgaria. The technology and equipment will also be easily transferred to other Member States.

The project specifically aims to

- Demonstrate an innovative technology that could be considered as a Best Available Technique (BAT) for the updating of the BAT Reference Documents (BREF) in the medical waste treatment sector – i.e. the treatment of medical waste using microwave technology, an environmentally friendly alternative to the classical methods (incineration, autoclaving, etc);
- Draw up technical documentation, based on the demonstration of the innovative technology and equipment developed during the project implementation, as a basis for policies designed to ensure sustainable management and treatment of medical waste.

LIFE10 ENV/RO/000731
MEDWASTE



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Name of contact person

Liliana SÂNDICA

Duration of project:

26 months (01/09/2011 - 31/10/2013)

Total budget in euro:

623,553.00

EC contribution in euro with %:

300,580.00 (49.04 %)

Generic theme:

Hazardous waste

Expected results:

The project will demonstrate the feasibility of microwave technology in the treatment of medical waste, and its status as a BAT, leading to the updating of the relevant BAT Reference Documents (BREF).

It will also consolidate the knowledge base for the implementation in Romania and Bulgaria of EU policy and legislation on medical waste, in particular the Waste Framework Directive and the Hazardous Waste Directive (legislation on PCBs and POPs).

Carbon Dioxide Mitigation from Green House Gases in Algal Photosynthetic Systems

Project background

Fossil fuel power plants are responsible for some 24% of total EU-27 CO₂ emissions and 48% of Romanian emissions. Reduction of emissions is technically feasible and can produce benefits that outweigh the costs involved. All options must be exploited from carbon capture and storage to carbon sequestration. Biological fixation of CO₂, particularly through the use of technologically appropriate photosynthetic systems, is potentially one of the most promising ways to reduce CO₂ emissions from the energy sector, both in terms of cost and in terms of environmental impact. Research suggests the technique could be used for CO₂ mitigation through the practical photosynthesis of micro algae, but this has not been tested by a demonstration project.

Project objectives

The overall objective of the ALGAE-GHG project is to develop a demonstration integrated photosynthetic system based on the sequestration of greenhouse gases (GHG) in algal biomass used as raw materials for value-added bio-products.

The project will increase in scale (1 200 litres) new technological solutions tested at laboratory and small pilot scale. Specific objectives include:

- Carbon dioxide mitigation from flue gas emissions of thermoelectric power plants using a new and clean technology for biological carbon sequestration in algal culture, which is 10-20 times more efficient than that used in other plants;
- Value added use of algal biomass in various applications, such as lipids as an alternative source for biofuels and horticulture oils, as well as proteins for feed additives and spent algal biomass as plant bio-stimulants, fertilisers and soil enhancers;
- Technical and economic analysis regarding the implementation of the technology on an industrial scale;
- A market study on the final manufactured bio-products resulting from the application of the technology proposed by the project; and
- Technological solutions for the value-added use of products such as algal oil and spent biomass.

Expected results:

- CO₂ content reduction in flue gases released into the atmosphere by micro algae, which offers the potential to convert from power plant CO₂ to biomass: for every 2 kg of CO₂ consumed, 1 kg of biomass is produced;

LIFE10 ENV/RO/000734
ALGAE-GHG



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Name of contact person

Sanda VELEA

Duration of project:

36 months (01/09/2011 - 31/08/2014)

Total budget in euro:

1,099,548.00

EC contribution in euro with %:

495,324.00 (45.05 %)

Generic theme:

Reduction of emission of greenhouse gases

- Improvement of the oxygen content in the atmosphere, as oxygen is a natural product of photosynthesis: for every kg of CO₂ consumed, 0.73 kg of O₂ is released;
- Production of algal biomass that can be divided into products for use in various applications: lipids as an alternative source for biofuels and horticulture oils; proteins, for feed and food additives; and spent algal biomass as plant bio-stimulants, fertilisers and soil enhancers;
- Efficient use of the biomass for agricultural surfaces: 50 times more algae can be produced per hectare per year than terrestrial biomass: 150 tonnes/ha/yr compared with 3 tonnes/ha/yr; and
- The creation of new jobs by developing the technology of CO₂ capture and sequestration on an industrial scale, and by marketing bioproducts obtained from algal biomass.

The impact of geological environment on health status of residents of the Slovak Republic

Project background

The geological environment of Slovakia is particularly varied. Diverse geochemical conditions also have various (positive and negative) impacts on human health. Significant contamination resulting from human-caused pollution (anthropogenic contamination) has been documented over an area equivalent to 10% of the total territory of the Slovak Republic. In many of these 'high risk' (contaminated) geological regions, there are sites where life expectancy is considerably lower than the average and where the incidence of different illnesses, mainly cancer and cardiovascular diseases, is 2-5 times higher. Up-to-date surveys show significant correlations between the presence of elements in the geological environment and health impacts.

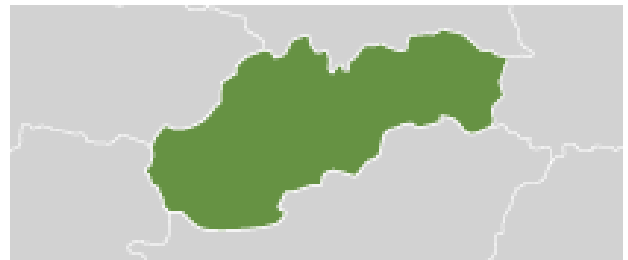
This project will focus on assessing the negative impacts of both natural (geological) conditions and anthropogenic contamination on human health. There is basic information on contaminated sites in Slovakia. But, to date, no systematic research has been carried out on the negative impacts on human health. Even less work has been done on assessing the health impacts from natural geological conditions.

Project objectives

The project's main objective is to reduce the negative impact of geological conditions on the health of the population of the Slovak Republic. Specific objectives are:

- To compile data on environmental indicators (chemical elements/compounds) for groundwater and soil from the whole territory of the Slovak Republic showing the greatest impact on human health;
- To compile data on the health indicators for the Slovak Republic (demographic evolution and health status of the population) that are most influenced by geological conditions;
- To link the environmental- and health- indicator data and assess their interrelationship;
- To identify and characterise the areas whose residents suffer from health problems associated with an unfavourable (contaminated) geological environment;
- To carry out environmental-health analysis by regions, and to define maximum levels for chemical elements/compounds in soil and groundwater based on negative human health effects;
- To draw up a proposal to reduce the negative environmental impact of geological conditions on the health of the Slovak population; and
- To implement the proposed measures.

LIFE10 ENV/SK/000086
Geohealth



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Stanislav RAPANT

Duration of project:

48 months (01/09/2011 - 31/08/2015)

Total budget in euro:

418,112.00

EC contribution in euro with %:

207,273.00 (49.57 %)

Generic theme:

Risk assessment - Pollution control

Expected results:

- The production of datasets of environmental and health indicators requiring monitoring and assessment;
- The identification of areas of the country where people's health has suffered due to unfavourable (contaminated) geological conditions;
- An assessment of environmental indicators and their negative effects on human health – to form the basis for relevant guidelines;
- A proposal for measures to reduce the negative impacts of geological conditions on the health status of people living in the Slovak Republic; and
- Implementation of the proposed measures in the areas identified, as well as awareness-raising activities. For example, in the project's final year, 10 public information meetings will be organised for people living in the 'risk areas'.

Wet-laid technology application for textile residues revalorisation in composites industry

Project background

The textile and clothing industry is an important part of the European manufacturing sector, accounting for 3% of total manufacturing added value in Europe. In many EU regions, it accounts for an even bigger share of manufacturing activity and is vitally important to economic and social well-being. The industry covers a large number of activities, including the transformation of fibres to yarns and fabrics, the treatment and dyeing of materials, and the production and distribution of a wide variety of products.

The main environmental concern in the textile industry is the amount of water discharged and the chemical load it carries. The types of waste generated by the sector include chemical waste from the dyeing process, sludge, printing toners, used oils, grease and oil-impregnated rags and contaminated textile waste. The industry also presents risks of accidental leaks.

Wetlaying technologies use a production process similar to papermaking. An aqueous suspension of fibre is filtered onto a moving surface before it is dried into a solid final product. These can be made with wood pulp or other natural fibres blended with synthetic fibres or fibreglass.

Project objectives

The WET-COMP project aims to exploit solid textile wastes and some specific paper and wooden packaging wastes by means of wetlaid technology. This technology will be applied to wastes from the textile and clothing industry to make non-woven textile structures suitable for use as reinforcements in the composites industry. The project will try to obtain a global procedure, which can be applied to the different sub-sectors of the textile and clothing industry.

The project will specifically demonstrate and validate processes for using wetlaid technology to transform waste products from the spinning and weaving/knitting sub-sectors. It will also demonstrate the usefulness of the final products in reinforcing polymer matrices. The project will also assess the economic benefits of this process.

LIFE10 ENV/ES/000431
WET-COMP



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

Asociación de Investigación de la Industria Textil (AITEEX)

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Name of contact person

Rosa LÓPEZ

Duration of project:

24 months (01/01/2012 - 31/12/2013)

Total budget in euro:

544,155.00

EC contribution in euro with %:

272,076.00 (50.00 %)

Generic theme:

Industrial waste (including manufacturing)

The overall objective is to reduce waste disposal by 7.5% and to revalue at least 30% of the existing waste, thereby contributing to the implementation of Community legislation on waste, in particular the revalorisation and wash-off elements of the Waste Framework Directive.

Expected results:

- A standard procedure for recycling textile wastes - from the spinning and weaving sub-sectors - into products suitable for use as reinforcements in composite panels;
- A global vision on the possible uses of wetlaid technology for recycling in the textile/composites sectors;
- The identification of what wastes can be recycled and with which technical application; and
- A demonstration of the economic and environmental benefits of recycling using wetlaid technology.

Tackling climate change: innovative technologies for efficient use of resources and energy in housing restoration

Project background

Some 70% of Europeans live in residential buildings that are more than 20 years old, which were generally built to lower environmental and health standards. These older buildings typically require ongoing renovation over time. These renovations provide a challenge, but also an opportunity to improve the performance of the building in terms of energy efficiency and sustainability. Given that most households have limited economic resources, finding cost-effective ways to achieve this is vitally important. Upgrading of the housing stock requires all relevant actors, including administrations, designers and social workers, to understand the issues at stake and what they need to do.

Project objectives

The EWsolutions4OLDhousing project aims to establish a standard methodology for the sustainable retrofitting of social housing. This will serve as a tool to help stakeholders overcome some of the existing barriers to the achievement of sustainable housing in the EU.

The project will identify new technologies, products and innovative building systems for the retrofitting of social housing and demonstrate the feasibility of their application when tailored to the physical, economic and social conditions of each building or type of housing. It will look at how existing building materials can be used in the construction of more sustainable housing.

Based on these experiences, the project will develop an on-line tool to quantify, clarify and classify the sustainability of actions for retrofitting housing. This will provide architects, builders, decision-makers and authorities with greater awareness and knowledge of the sustainable solutions for retrofitting old housing and reusing old materials.

The project ultimately hopes to promote the implementation of optimised building concepts that have the potential to decrease impacts associated with the lifecycle of buildings. It specifically aims to:

- Increase the lifespan of buildings;
- Reduce the generation of construction and demolition waste by 170 tonnes per retrofitted house;
- Increase the reuse of building materials and reduce demand for new raw materials by 180 tonnes per

LIFE10 ENV/ES/000439
EWsolutions4OLDhousing



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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José LuíS FUENTES-CANTINALLA ISUSI

Duration of project:

42 months (01/09/2011 - 28/02/2015)

Total budget in euro:

2,241,545.00

EC contribution in euro with %:

972,754.00 (43.40 %)

Generic theme:

Reduction of emission of greenhouse gases

house, thereby reducing associated energy consumption by 18.48 Tpe (total power exchange) and CO₂ emissions by 68.37 tonnes;

- Reduce the annual energy consumption in retrofitted houses by 0.33 Tpe (total power exchange) and associated CO₂ emissions by 1.22 tonnes; and
- Increase the comfort and value of social housing, and reduce energy bills for occupiers by some 30%.

Expected results:

- A standard methodology for the sustainable retrofitting of social housing, including an on-line assessment, evaluation and decision-making tool for stakeholders;
- Decreased energy consumption and resource use in the construction sector; and
- Social and economic benefits for the social housing sector.

Demonstrative plant for manure management of a medium size exploitation by anaerobic digestion and agronomic valorisation of the digestate

Project background

Livestock farming in Europe developed into an efficient industry during the second half of the twentieth century. However, prospects for the future are marred by an increasing number of environmental problems. One notable issue is water, air and soil pollution, and pollution risks that stem from the large quantities of manure produced in regions practicing intensive farming. Specific problems include nitrate contamination of water, ammonia emissions and odour nuisance.

Existing guidelines have encouraged a shift from the disposal of manure to a resource management approach. Techniques such as land spreading seek to make use of the manure in a positive way, as a fertiliser. However, the quantities of manure produced often exceed local requirements, optimal land spreading is not always practical, and there may still be problems from odour nuisance or disease risks.

New and improving treatment technologies can significantly improve the management of livestock manure. Current systems include biological and physical processes and sometimes the use of chemical additives. A typical process is anaerobic treatment, and the use of aeration to reduce nitrogen surplus and offensive odours. Emerging technologies include thermal processes and the production of organo-fertilisers.

Currently, most anaerobic digestion plants are built for joint management by several farms, with the objective of producing large amounts of energy for sale.

Project objectives

The objective of the Hispano-Latvian UNIDIGES project is to demonstrate that it is possible to achieve successful management of manure at the level of the individual livestock farm. It aims to develop a pilot demonstration plant based on the anaerobic digestion of manure from a single, medium-sized farm, achieving reduced pollution risks and a commercial end product.

The new system will be tested on different farms and on several types of manure. Energy will be harnessed through the construction of a 100Kw co-generator.

LIFE10 ENV/ES/000442
UNIDIGES



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

Centro Tecnológico L'Urederra

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Claudio FERNÁNDEZ

Duration of project:

42 months (01/09/2011 - 01/03/2015)

Total budget in euro:

1,310,678.00

EC contribution in euro with %:

614,089.00 (50.00 %)

Generic theme:

Agricultural waste

The project will also develop and demonstrate a market for the digestate, for use as an agricultural fertiliser.

Through these interventions, the project hopes to reduce greenhouse gas emissions, reduce the impact of nitrates on waterways, improve the nutrient balance of the soil, reduce odour nuisance, and establish a market for the digestate.

Expected results:

- A demonstration pilot plant for anaerobic treatment of livestock manure;
- The successful treatment of 3 000 m³ of manure;
- Reduced negative environmental impact of manure; and
- A commercial market for the digestate.

Demonstration of a smart solar cooling/heating system in a pharmaceutical warehouse for validation, demonstration and transfer of an innovative cooling system

Project background

The demand for cooling technology is rapidly increasing in many parts of the world, including in most EU Member States. However, the use of products such as fans and air-conditioning systems results in a dramatic increase in electricity demand on hot summer days. This causes an unwanted increase in the use of fossil and nuclear energy and threatens the stability of electricity grids.

The pharmaceuticals sector has significant cooling needs. The European Directive 2001/83/EC (as amended by Directive 2004/27/EC) on the Community code relating to medicinal products for human use, and subsequent national legislation, requires specific temperature and humidity conditions to be maintained for the storage of medicines. In Spain, the requirement to store medicines at $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and humidity levels of $60\% \pm 5\%$ creates a significant cooling demand. Temperature control is particularly difficult to achieve, since the buildings that serve as warehouses for pharmaceutical products are normally large buildings with high energy demands.

Project objectives

The MEDICOOL project aims to develop and demonstrate an innovative solar technology solution for the heating and cooling of medicine storage warehouses in Spain. It furthermore seeks to facilitate the transfer of the process to other areas.

The project will develop a prototype solar-based cooling system, which will be installed in a pharmaceutical storage centre. The system will be monitored and evaluated to assess the success of the process and its constituent parts during operation.

The project aims to achieve optimal performance of the new technology and demonstrate that it is a technically feasible solution for reducing energy demand for cooling by more than 70%. There will also be additional benefits in terms of more efficient heating during colder months.

LIFE10 ENV/ES/000456
MEDICOOL



Beneficiary:

Type of beneficiary

Large enterprise

Name of beneficiary

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Teodoro CANO ABELLÁN

Duration of project:

39 months (01/09/2011 - 30/11/2014)

Total budget in euro:

6,704,503.00

EC contribution in euro with %:

1,594,588.00 (23.78 %)

Generic theme:

Reduction of emission of greenhouse gases

Technical, economic and adaptation studies will also assess how to better apply the innovative solution at different scales, to other sectors, and in other areas. This will help to better understand the most efficient performance systems for different conditions.

Expected results:

- Demonstration and practical application of a new sustainable solar cooling system;
- A 70% (795 000 KWh/yr in real terms for the pilot plant), or more, reduction in the energy needs of medicine warehouses;
- Associated annual emissions reductions of: 190 tonnes of CO₂; 766 tonnes of SO₂; 626 tonnes of NO_x; 4 140 cm³ of radioactive residues of low and medium activity; and 508 g of high radioactive activity residues;
- Economic savings of €105 000/yr for the pilot plant from cooling alone; and
- A decreased threat to the stability of electricity grids.

Project of demonstration about the use of *Nicotiana glauca* as energetic crop in fighting against the climate change and the soil erosion

Project background

Soil erosion is an increasing problem. In Europe, nearly 115 million ha are affected by water erosion and 42 million ha are subject to wind erosion. The problem is particular acute in the Mediterranean region because of its fragile environmental conditions. However, soil erosion is an issue in most European countries.

Nicotiana glauca is a wild tobacco plant species that stores sugars in its stems. This natural characteristic makes it an interesting crop for bio-ethanol production, and for the generation of other biomass for combustion and pyrolysis (a thermochemical decomposition of organic material at elevated temperatures in the absence of oxygen). The species also produces several potentially interesting natural compounds, such as anabasine, which was traditionally used as an insecticide.

The plant lives in arid environments, generally near the sea, and has been naturalised in almost the whole Mediterranean area. It is capable of growing in an irrigation regime lower than 200 mm/yr, in abandoned and eroded lands not suitable for traditional crops. It is possible, therefore, to extend this crop to areas that are currently not in use and consequently exposed to soil erosion.

Project objectives

The ECOGLAUCA ÉRGON project aims to examine, demonstrate and evaluate the benefits of cultivating *Nicotiana glauca* on land that is currently abandoned. The project will seek to generate biomass and other commercial products, and demonstrate the plant's contribution to fighting soil erosion and climate change.

The project will develop a set of actions to evaluate, at pilot scale, the suitability of the plant as a means to:

- Combat soil erosion and desertification in abandoned and uncultivated areas;
- Promote rural development by providing a commercial crop for arid land - less than 200 mm/yr of water - and requiring little maintenance; and
- Provide biomass for bio-ethanol production, with no impact on land traditionally used to grow crops for food.

LIFE10 ENV/ES/000458
ECOGLAUCA ÉRGON



Beneficiary:

Type of beneficiary

Local authority

Name of beneficiary

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Santiago ARÉVALO LLÁCER

Duration of project:

36 months (01/09/2011 - 01/09/2014)

Total budget in euro:

1,375,552.00

EC contribution in euro with %:

634,624.00 (46.14 %)

Generic theme:

Forest management - Soil and landscape protection -
Desertification prevention

The project will determine the best crop conditions and the best use of the plant in areas exposed to erosion. It will also examine the possibilities of extracting and exploiting compounds produced by the plant - such as the alkaloid anabasine - at pre-industrial scale, without interfering in the energy value of the biomass.

Expected results:

- The exploitation of *Nicotiana glauca* as an energy crop, thus helping to tackle climate change;
- The development of additional by-products of the plant; and
- The re-cultivation of abandoned land, thereby tackling soil erosion.

Design and development of a demonstrative recycling line for the separation of post-consumer polyolefin mixtures

Project background

The polymerisation of Olefins/Alkenes is an efficient and low cost reaction that yields polymers of high industrial value, such as the plastics polyethylene and polypropylene. These polyolefins have a variety of uses, such as in plastic film, plastic bags, heat-shrink electrical insulation sleeves, and even in tennis strings.

Polyolefins are relatively easy to recycle. One of the most common recycling processes used is extrusion blow moulding. This melts the plastic and extrudes it into a hollow tube, which is then closed in a cooled metal mould. Air is then blown into the tube, inflating it into the desired shape before the plastic solidifies on cooling.

However, a major obstacle to recycling efforts is the practical difficulty in isolating pure forms of different types of polyolefins. Urban and industrial waste collection always presents a mixture of three main plastic film components: low-density polyethylene (LDPE), high-density polyethylene (HDPE), and polypropylene (PP).

These plastic fractions can be processed together for different applications, such as injected or extruded material, but their different physical properties can lead to defects in the final product, thus reducing the possibilities for reuse. Current techniques do not permit the adequate separation of these three types of plastic film at source.

Project objectives

The main objective of the REC-POLYOLEFIN project is to design and develop a demonstration plant for the separation of mixtures of used polyolefin films. Using electrostatic and pneumatic techniques, the new plant will sort plastic that cannot currently be separated after waste collection.

The project intends to separate the polyolefins into two fractions. The first will be LDPE with less than 4.5 % impurities, used for the manufacture of essential products such as film. The second will be HDPE and PP with less than 20% impurities, used for the manufacture of continuous shapes of plastic using plastic profile extrusion.

The project will treat 15 000 kg of used polyolefin mixtures, targeting a recovery rate of 10% to 55% of waste polyolefins, and a separation capacity of 1 000 kg/h. It

LIFE10 ENV/ES/000460
REC-POLYOLEFIN



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Claudio FERNÁNDEZ

Duration of project:

36 months (01/09/2011 - 31/08/2014)

Total budget in euro:

1,127,384.00

EC contribution in euro with %:

504,569.00 (44.76 %)

Generic theme:

Packaging and plastic waste

aims to show the technical and economic feasibility of the process and the potential value of the recycled products. The ultimate aim of the project is to increase the recycling of polyolefin film and to reduce the environmental costs associated with producing new film.

Expected results:

- A demonstration pilot plant for separating mixed polyolefins, with a recycling capacity of 1 000 kg/h;
- Demonstrated economic and technical feasibility of using the plant to separate polyolefin mixtures into two fractions;
- A recycling rate of 10% to 55% of the polyolefins collected; and
- A subsequent increase in the recycling of polyolefins, with a 20% reduction in associated CO₂ emissions.

Sustainable strategies for integrated management of agroindustrial fruit and vegetable wastes

Project background

Unlike other types of residues such as hazardous waste or urban solid residues, there is a lack of clarity about the best treatment processes for wastes from fruit and vegetable industries. This is exemplified by the lack of detail in the European Commission's treatment list. This classifies such waste quite generally as "plant-tissue waste" and "materials unsuitable for consumption or processing".

This fails to take into account the specificity of some of the types of waste, such as pruning or crop residues. As result there is no effective application of best management and enhancement practices.

In order to increase the effectiveness of the different community and national sustainability strategies, it is necessary to conduct specific and concrete actions that incorporate best management and enhancement practices for any type of fruit and vegetable waste and residues. This is especially true where the development of policies and practices is inadequate and limited.

Project objectives

The AGROWASTE project aims to design an integrated management system for fruit and vegetable wastes (FVW) for the Region of Murcia, Spain. It will promote environmentally friendly technologies that convert current FVW into resources for subsequent use. It will also adapt and demonstrate proposed technologies for delivering economically useful end products for specific waste types.

The project will collate a detailed database of FVW covering the specific properties of each waste stream, including the generation rate and chemical and physical characteristics. It will identify all the main sustainable strategies for FVW management. This information will be made available on a web portal, through which stakeholders will be able to identify the best available technology for a specific FVW.

In addition, the AGROWASTE project will carry out pilot-scale demonstrations of some of the most innovative technologies for creating valuable FVW. These will focus on three possible end products:

- Food – by identifying and adding value to FVW bioactive compounds used for multifunctional food ingredients;

LIFE10 ENV/ES/000469
AGROWASTE



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Margarita ROS

Duration of project:

36 months (01/01/2012 - 31/12/2014)

Total budget in euro:

1,593,794.00

EC contribution in euro with %:

729,807.00 (45.79 %)

Generic theme:

Agricultural waste

- Energy - by obtaining biogas through anaerobic digestion of industrial wastewater and organic solid wastes with high organic loading;
- Agriculture - by obtaining mature organic soil amendments through an aerobic process that can be used both for improving soil quality and as a substitute for non-renewable peat. They could also be used as a biological control agent against phytopathogens, permitting reduction of chemical pesticides.

Expected results:

- A web platform (intranet and extranet) database of FVW and treatment technologies;
- Intelligent software for identifying the best treatment technologies for different FVW;
- A pilot demonstration of how to add value to FVW in the food, energy and farming sectors; and
- Improved sustainability of the fruit and vegetable sector with a reduced negative environmental impact in terms of contamination wastes, CO₂ footprint, and use of chemical fertilisers and pesticides.

High Technology Waste Treatment

Project background

There are no suitable technological solutions regarding the collection and treatment of liquid crystal displays (LCDs), light-emitting diodes (LEDs), plasma displays and photovoltaic panels at their end-of-life. Current systems do not provide for satisfactory recovery and recycling of materials or treatment of potentially hazardous wastes.

On average, LCDs contain 59% mercury, a heavy metal that is a strong pollutant and which creates a significant hazard to human health at the end of the product's life. Plasma displays in turn contain a highly toxic resin, which is very pollutant and environmentally hazardous.

Rapid technological change in the world of television screens and computer monitors means that technologies are being introduced and replaced often in only a few years. Television screens have been made using different emerging and evolving technologies based on the use of cathode ray tubes, LCDs, plasma displays and LEDs.

One of the main environmental challenges of these developments is that there are now a large number of LCD and plasma displays reaching their end-of-life and needing to be appropriately processed. There are few methods for satisfactory treatment of LCD display tubes and there are major problems when tubes that contain mercury are broken during the dismantling process.

Project objectives

The HTWT project aims to develop a comprehensive management plan for the collection and treatment of waste screens and displays. It will develop an industrial prototype for the treatment of LCD, LED, plasma displays and photovoltaic panels.

The project will collect samples of the different kinds of screen and display and conduct detailed tests to find suitable treatment processes to deliver reusable materials. It will work to identify new applications for the emerging products.

HTWT expects to use an induction coil capable of transmitting heat to the metallic elements of the display - connectors, plates, terminals, screws, cables

LIFE10 ENV/ES/000470
HTWT



Beneficiary:

Type of beneficiary

Regional authority

Name of beneficiary

Consellería de Medio Ambiente, Agua, Urbanismo y Vivienda de la Comunidad Valenciana
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Carmen DE ROSA

Duration of project:

36 months (15/09/2011 - 01/09/2014)

Total budget in euro:

1,367,500.00

EC contribution in euro with %:

659,957.00 (48.26 %)

Generic theme:

Waste from Electrical and Electronic Equipment

and tracks - to melt the thermoplastic components - insulation, adhesives - that act as union or support. Melting of the thermoplastic materials will facilitate the separation of the components, reducing both the time required to disassemble the screens and the risk of damage to the environmentally sensitive parts.

The project ultimately hopes to increase the recovery and recycling of materials from displays and screens, thus decreasing the amount of hazardous waste going to landfill and decreasing the consumption of raw materials in the electronics sector. It seeks to reduce the carbon footprint of the sector and the risks to human health.

Expected results:

The main expected result is the improved recovery and recycling of materials from displays and screens.

Profitable organic farming techniques based on traditional crops: contrasting soil degradation in the Mediterranean

Project background

Farmland occupies around 50% of Europe's land area and farming activities have shaped a rich variety of landscapes and habitats. It plays a vital role in maintaining natural resources and cultural landscapes and is crucial for many human activities. However, inappropriate agricultural practices also cause adverse environmental effects, including degradation and pollution of soil, water shortages and pollution, air pollution, fragmentation of habitats and loss of biodiversity.

In Spain, as in most Mediterranean countries, agricultural yields have been falling steadily, unless propped up by artificial irrigation or the use of fertilisers and pesticides. It is only because of EU's farm subsidies (CAP) that agriculture persists in less prosperous areas. Every year, large tracts of land fall into disuse, as erosion and ever drier soils mean that farming is no longer viable. Currently in Spain, the organic matter content of dry lands ranges from 0.0 to 0.5%.

Organic agriculture has long been recognised as having positive benefits for the soil and the environment generally, but it continues to be scarcely applied, especially in these poor-soil areas. This is mainly attributed to insufficient knowledge about optimal application techniques and the perception of low economic benefits unless supported by subsidies.

Project objectives

This LIFE project aims to demonstrate that the application of organic farming techniques can make cultivation of semi-arid land economically viable. The project therefore aims to demonstrate an alternative to current erosive farming practices and land abandonment in areas with vulnerable dry soil types.

The project will examine optimal combinations of methodologies (crop rotation; fertilisation with compost; and re-introduction of traditional crops) to achieve the best soil and crop quality results for specific soil and climate conditions. It will seed a variety of crops - including the re-introduction of at least five traditional crops - on a variety of soil types with different characteristics in terms of acidity, erosion, stones, organic matter, humidity, etc.

LIFE10 ENV/ES/000471
Crops for better soil



Beneficiary:

Type of beneficiary

Large enterprise

Name of beneficiary

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Mariano SAZ ACHUELO

Duration of project:

60 months (15/10/2011 - 14/10/2016)

Total budget in euro:

3,556,642.00

EC contribution in euro with %:

1,729,070.00 (48.62 %)

Generic theme:

Forest management - Soil protection - Desertification prevention

Weather stations and innovative sensor technologies will be applied to monitor, analyse and manage the different variables of the project sites. Control areas will be used to enable assessment of the effects of different practices. Farmers collaborating with the project will receive tailored training to enable their effective participation.

Expected results:

- A 20% increase in the organic content of topsoil (fertility) and yields of semi-arid land through organic farming methods;
- Reintroduction of at least five traditional crops to semi-arid areas;
- Promotion of new niche markets for organic produce with a lower CO₂ footprint compared to other types of farming;
- Demonstration of the economic viability of organic farming on semi-arid land;
- Development of the skills base and enhancement of the quality of life of farmers.

Repercussion of Agricultural Activities in Nitrate Contamination of Continental Water

Project background

Nitrates currently constitute the main source of diffuse pollution of surface and ground water, affecting to a greater or lesser extent all EU Member States. Concentrations of nitrogen compounds have increased in recent decades, resulting in a significant pollution challenge. The main source of this pollution is the excessive or unsuitable use of fertilisers and residues on livestock farms.

Many public administrations, including the EU, have already introduced new rules for the management of mixed farming. These new rules require the identification of waters affected by nitrate pollution and the definition of the appropriate criteria to establish the vulnerability of specific areas. In addition, they call for the development of action programmes in order to control, prevent or minimise the effects of nitrates on water.

Project objectives

The NITRATES project aims to improve knowledge of the impact of farming and cattle raising on nitrate contamination of waters and to define and promote best practices to reduce this. The project therefore aims to contribute to the implementation of the EU Nitrates Directive (91/676/EEC).

The effects of farming practices on an impermeable pilot area subjected to irrigation and the use of organic and inorganic fertiliser will be studied. The project will also look at the effects of cattle raising activity and the nitrate inputs and outputs derived specifically from cattle waste management. It will examine the contamination of both surface waters and groundwater.

By means of the analysis of inputs and outputs in the irrigation pilot area, the project will develop new simulation models for quantifying the contamination of groundwater by nitrates from farming sources. It will also extract conclusions to enable an assessment of the action plans and measures that are currently implemented to avoid nitrate contamination.

Where actions are found to be insufficient, the project team will define corrective actions and best practice for local farmers as well as local, regional and national

LIFE10 ENV/ES/000478
NITRATES



Beneficiary:

Type of beneficiary

Regional authority

Name of beneficiary

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Fernando MENDONZA

Duration of project:

36 months (01/09/2011 - 31/08/2014)

Total budget in euro:

2,420,765.00

EC contribution in euro with %:

1,147,132.00 (47.39 %)

Generic theme:

Diffuse and dispersed sources of pollution

authorities. These will inform decision making tasks related to the planning and protection of the different continental waters - freshwater rivers, lakes, glaciers or groundwater as well as inland saltwater systems - without loss of profitability of agricultural activities. Finally, the project will carry out field demonstrations and training for farmers in order to raise awareness of the appropriate corrective measures.

Expected results:

- Greater knowledge of the impact of current agricultural practices on nitrate flows;
- A tool for computing nitrate balance;
- The identification of best practice for reducing nitrate contamination of waters; and
- Better planning for water protection.

Demonstration-Plant Project to Produce Poly-Lactic Acid (PLA) Biopolymer from Waste Products of Bakery Industry

Project background

Some 8-9% of fossil fuels consumed in the EU are used as raw material in various industrial processes. About half of this amount is used in the manufacture of polymers. Fossilised carbon is therefore transformed into products that may, at the end of their useful life, release this carbon into the atmosphere, contributing to the greenhouse effect and global warming.

As an alternative or complement to petroleum-based polymers, a series of biopolymers or bioplastics have been developed from natural sources, such as starch or sugarcanes. These represent an interesting alternative because they have environmental benefits such as reduced greenhouse gas emissions and lower energy consumption compared to the petrol-based products. There are also economic benefits to be gained from moving away from expensive petroleum products and a reliance on fossil fuels.

The European bakery sector produces 3.5 million tonnes of retrodegraded waste with minimal nutritional value every year. At least 5% of this waste is disposed of in landfill because there is currently no alternative use. Managing waste from the bakery sector results in the release of significant combustion gases and the consumption of large amounts of energy.

Project objectives

The main objective of the BREAD4PLA project is to demonstrate the technical and economic viability of using waste products from the bakery sector in the fabrication of a 100% biodegradable film. The project will establish and operate a continuous pilot plant at pre-industrial scale for the synthesis of Poly-lactic Acid (PLA) from bakery waste products.

The project's low-energy process will use water-based enzymes to produce PLA from retrodegraded bakery waste products. It will scale-up the polymerisation process of PLA using lactic acid obtained from bread-waste fermentation and suitable additives, such as plasticisers and natural antioxidants. The PLA will therefore be made from 95% renewable resources.

The practical use of this PLA as a thermoplastic packaging film within the bakery sector will then be demonstrated. The project hopes to show that the new PLA meets current packaging requirements and standards and that it is 100% biodegradable.

LIFE10 ENV/ES/000479
BREAD4PLA



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Raquel GINER BORRULL

Duration of project:

36 months (01/10/2011 - 30/09/2014)

Total budget in euro:

1,116,526.00

EC contribution in euro with %:

488,869.00 (43.78 %)

Generic theme:

Industrial waste (including manufacturing)

Expected results:

- Demonstrated technical viability of producing PLA from bakery waste (95% renewable resources);
- Demonstrated suitability of PLA as a thermoplastic packaging film to replace plastic film from non-renewable sources;
- Reduced environmental impact of plastic film production due to lower energy and water consumption;
- Reduced environmental impact of plastic film due to the absence of carbon emissions at end-of-life;
- Reduced landfilling and combustion of waste from the bakery industry due to the re-use of retrodegraded waste;
- New economic opportunities for the bakery sector due to a 15% increase in the value of bakery waste; and
- Reduced costs (and price fluctuations) in the bakery sector due to a reduced demand for fossil fuels.

Valorisation and recycling of slurries produced during manufacturing stone sector to use as raw materials for industrial applications

Project background

The vast quantity of natural stone products used in the construction industry generates significant amounts of slurry deposits - estimated at five million tonnes per year in Europe. These deposits are often toxic as they contain chemicals from the mining processes, yet they are typically disposed of in poorly controlled or un-controlled dumps. This can lead to persistent and gradual contamination of soil, groundwater and surface water. There can also be major failures of the dumps, where large amounts of contaminants are suddenly released into the ground and/or water systems. This can have a significant environmental impact and present risks to human health.

Research at laboratory scale has found that drying the slurry can produce material with potential industrial applications, where there is a demand for micronised minerals as fillers. This includes the production of cement, concrete, ceramics and paints.

Novelda is a town of around 30 000 inhabitants in the province of Alicante, Spain. The area contains some important marble, limestone, silica, clay and gypsum mines and quarries. It is estimated that this mining area produces 250 000 tonnes of slurries annually.

Project objectives

The main objective of the RECYSLURRY project is the development and demonstration of a methodology for the recycling and valorisation of slurries produced during the industrial processing of natural stone products. It aims to overcome technical challenges in recycling this slurry and demonstrate the economic viability of the new process.

The project will develop a pilot process for taking the slurries and turning them into usable material. This will include the fast and easy characterisation of the slurries and a drying process. Small and medium enterprises from four sectors of activity - cement, concrete, prefabricated building materials and ceramics - will be selected to trial the resulting material. The project expects to demonstrate at least 10 different applications, such as in self-compacted concrete, cement additive, bricks, tiles and porcelain.

In this way, the project seeks to demonstrate the potential application at industrial scale. Its target is to be able to successfully treat and reuse 50% of the slurries produced annually in the Novelda area.

LIFE10 ENV/ES/000480
RECYSLURRY



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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María DEL REY TAPIA

Duration of project:

36 months (01/09/2011 - 30/08/2014)

Total budget in euro:

1,401,343.00

EC contribution in euro with %:

700,671.00 (50.00 %)

Generic theme:

Industrial waste (including manufacturing)

RECYSLURRY will develop guidelines for the management and recycling of slurries from the natural stone sector, with the ultimate objective of 100% recycling in the near future. These guidelines will set out the potential industries and markets which are demanding micronised minerals.

Expected results:

- The successful treatment of 125 000 tonnes of natural stone slurries per year;
- The use of all the recycled material in at least 10 new products in four industrial sectors - cement, concrete, prefabricated building materials and ceramics;
- The elimination of uncontrolled slurry dumps in the project area and the removal of associated risks of contamination; and
- Reduced demand for raw micronised materials, lowering the environmental impact of the quarries.

Environmental Sustainability

Software Tool for the Agroindustrial Sector

Project background

The Institute for Prospective Technological Studies (IPTS) is one of the seven scientific institutes of the European Commission's Joint Research Centre (JRC). In 2006, it published a report on the Environmental Impact of Products (EIPRO), which analysed the lifecycle environmental impacts related to consumption in the EU-25 countries.

Meat and meat products were found to have the greatest environmental impact. The estimated contribution of this product grouping to global warming was in the range of 4 to 12% of the impact of all products. For a follow-up report in 2008 ("IMPRO"), IPTS conducted an in-depth analysis of the primary sector. It found that "the consumption of meat and dairy products contributes on average 24% of the environmental impacts from the total final consumption in EU-27, while constituting only 6% of the economic value."

The main improvement options - with an aggregated potential reduction of about 20% of environmental impacts - were identified in agricultural production, household food management, and related to power savings. The implementation of Lifecycle Assessments (LCAs) in the primary sector can be a key tool in guiding improvement options.

Project objectives

The AGROLCA-Manager project aims to support agro-food companies in the primary sector - and especially SMEs - to minimise the environmental impact of their products' lifecycles. It aims to make the companies more sustainable through improved management of the main environmental impacts from their use of resources and from the generation of waste. The project aims to provide specialised software to enable agro-industrial companies to conduct LCAs in their sector. It will improve and adapt a proven software tool - LCAManager - to match the characteristics of the sector, including the specific legal and market conditions, the predominance of SMEs and the low levels of training in environmental assessment.

The project will develop, test and validate the implementation of the tool in a winery and on a farm. Knowledge of these industries will be incorporated into the tool to adapt it to their specific needs. The process will identify and tackle any limitations of the tool and any gaps in required information. Finally, areas of high environment impact will be revealed and improvement actions suggested.

LIFE10 ENV/ES/000486
AGROLCA-Manager



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Gerardo BESGA

Duration of project:

34 months (01/09/2011 - 30/06/2014)

Total budget in euro:

1,170,000.00

EC contribution in euro with %:

576,200.00 (49.25 %)

Generic theme:

Integrated environment management

The aim is that the tool will help primary sector companies measure, demonstrate and reduce their environmental impact - as well as improving their economic and social impact. It should support them in activities such as calculating their carbon footprint and achieving eco-labels for marketing purposes. The project will work to find an optimum balance between the usability of the tool in the sector and the accuracy and usefulness of the data provided.

Expected results:

- An eco-innovation software tool for LCA in the agro-food sector;
- Demonstration of environmental LCAs in a winery and on a farm;
- Identification of improvement actions for areas of high environmental impact; and
- Reduced environmental impact of primary sector food producers.

Mobilisation and empowerment of citizens and key agents in the city, for improvement of urban environment in the city of Soria (Spain)

Project background

The city of Soria is developing infrastructure for optimum waste management and environmentally-friendly transport systems. It is also promoting awareness and education on environmental issues. The Soria CO2Cero LIFE project (LIFE09 ENV/ES/000437) is contributing to these objectives by creating an environmental corridor crossing the city. However, the impact of public interventions depends to a large extent on the positive attitudes of citizens and local businesses. Support for environmental decision-making and proactive participation in environmental initiatives is necessary to ensure the success of measures to improve environmental performance and combat climate change.

Project objectives

The main objective of People CO2Cero is to strengthen the engagement of the local community in efforts to improve the environmental performance of the city of Soria. At the same time, it aims to link citizen mobilisation with economic objectives, creating approaches that facilitate the involvement of businesses and banks in the overall project of sustainable urban development and job creation.

The project seeks to move beyond existing 'reactive' approaches of citizen mobilisation, often focused on resolving conflict, towards a process where citizens are leading a proactive process of environmental improvement, from the bottom up. It will design and implement new participatory strategies, with appropriate support tools for all stakeholders.

The council will play the essential role of linking all the public and private agents in the improved environmental management of the territory. It will create a network of urban environment agents (citizens), tasked with implementing at least 10 environmental actions. It will encourage financial institutions to develop and implement innovative eco-investment products and private companies to participate in Corporate Social Responsibility (CSR) processes.

It will create free-to-use software and an associated guidebook for eco-auditing. This will be used to implement an innovative and transversal process centred on monitoring and evaluating CO₂ emissions from

LIFE10 ENV/ES/000494
People CO2Cero



Beneficiary:

Type of beneficiary

Local authority

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Duration of project:

28 months (01/09/2011 - 31/12/2013)

Total budget in euro:

723,552.00

EC contribution in euro with %:

361,776.00 (50.00 %)

Generic theme:

Reduction of emission of greenhouse gases

everyday activities in households, public entities and businesses located in the eco-corridor.

Expected results

- Enhanced engagement of the local community in improving the environmental performance of the city of Soria and in creating a model sustainable city;
- The creation of a network of at least 30 urban environment agents;
- A free software tool and guidebook, and subsequent eco-auditing of at least 10 business, 10 households, and two public facilities;
- The participation of at least five financial entities in providing innovative eco-investment products, with funding agreed for at least 20 sustainable development projects;
- The participation of at least 20 companies in CSR processes; and
- A reduced CO₂ footprint for Soria.

CO₂ capture and bio-fixation through microalgal culture

Project background

According to the European Environment Agency, energy consumption accounts for 80% of all greenhouse gas (GHG) emissions in the EU. It is one of the primary risk factors for climate change and for most forms of air pollution. The EU is committed to reducing GHG emissions to a level that will contribute to limiting the global temperature increase to 2°C above pre-industrial levels (European Commission COM(2007)1).

Biofixation of CO₂ by microalgae has been the subject of extensive investigations in the U.S., Japan and Europe (IEA-GHG Biofixation Network). In particular, researchers have examined its potential application in the treatment of flue gases from power plants. However, no projects have yet successfully demonstrated the feasibility of this concept at a pre-industrial scale. In previous pilot projects, the CO₂ fixation efficiency - whether in open and raceway ponds or in enclosed photobioreactors - has always been quite low.

Project objectives

The key objective of the CO2ALGAEFIX project is to demonstrate, at a one hectare surface scale, an efficient way to capture CO₂ from stationary sources (in this case, a power plant that uses natural gas). It aims to demonstrate that CO₂ emissions can be used as a substrate for biomass algae production.

The project will use a 10 000 m² pilot plant constructed by Algaenergy for experiments in microalgae cultivation. It aims specifically to test and demonstrate a new photobioreactor concept based on flat panels as the basis for a highly efficient large-surface culture plant. The process proposed will include novel technologies to capture and concentrate CO₂, and make it available for culturing microalgae.

Through ongoing evaluation and optimisation of the pilot plant's design, and its connection to the CO₂-generation plant, the project hopes to achieve increased CO₂ bio-fixation and the photosynthetic efficiency of microalgal cultures. The 1 ha demonstration plant is expected to capture and fix more than 200 tonnes of CO₂ per year. If successful, the technology should easily scale-up to industrial level.

LIFE10 ENV/ES/000496
CO2ALGAEFIX



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Name of contact person

Augusto RODRIGUEZ-MATONS

Duration of project:

34 months (01/09/2011 - 30/06/2014)

Total budget in euro:

2,980,594.00

EC contribution in euro with %:

1,490,297.00 (50.00 %)

Generic theme:

Reduction of emission of greenhouse gases

CO2ALGAEFIX will also evaluate possible uses of the microalgae, for example, in the production of energy, or in the production of valuable compounds for different economic sectors.

Expected results:

- Successful operation of a demonstration plant for microalgae culture using CO₂ from stack gases;
- Optimisation of the plant's operation to achieve productivity in excess of 200 tonnes of algal biomass per year; and
- Valorisation of microalgal biomass in a variety of sectors, including aquaculture and agriculture.

Demonstrative technique to prevent eutrophication caused by agricultural nitrogen in surface flow water of Mediterranean climate zones

Project background

According to data from monitoring activities within the framework of the EU Nitrates Directive, excess concentrations of nitrogen in water remains a serious environmental problem. Policy measures to raise awareness about preventative measures and the more efficient use of fertilisers are not bridging the gap between policy goals and outcomes in the field.

A particular challenge to the effective reduction of nitrogen in water is to adequately take account of the specific conditions of each waterway. This means adapting measures for at least the following aspects: climate, geology, soil type and condition, and types of local agricultural activity and practices. The basin of the Cubillas river between Iznalloz and the Cubillas dam is a nitrate vulnerable zone in the province of Granada. The project will cover an area of 250 ha of this basin.

Project objectives

The objective of the EUTROMED project is to develop and demonstrate a sustainable method for the reduction of nitrogen levels in surface flow from agricultural land in the Mediterranean climate zone.

The project will install state-of-the-art buffer technology on a demonstration drainage area of 250 ha in the basin of the river Cubillas. The effectiveness of different nitrogen filters will be monitored and documented. By identifying good practice, the project will provide a reference on how to reduce levels of nitrogen in surface flow from agricultural land in the specific conditions of the Mediterranean climate zone.

A key objective is to provide guidance and training to public authorities, farmers and agricultural organisations on the principles of land stewardship and sustainable use of resources. The project will consolidate and contribute to existing knowledge and practices in relation to the efficient use of fertilisers, better irrigation practices and the processes of erosion. It will develop an IT tool to facilitate the design and selection of preventative measures to reduce nitrate pollution, and guidelines for fertilisation adapted to the farmland in question.

The project team will calculate the cost-efficiency of the buffer technology, taking into account the benefits achieved in terms of nitrogen reduction in water, in-

LIFE10 ENV/ES/000511
EUTROMED



Beneficiary:

Type of beneficiary

Regional authority

Name of beneficiary

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Myriam PRIETO LABRA

Duration of project:

42 months (01/09/2011 - 01/03/2015)

Total budget in euro:

1,504,486.00

EC contribution in euro with %:

750,742.00 (49.90 %)

Generic theme:

Diffuse and dispersed sources of pollution

creased biomass production and reduced soil erosion. It will also provide guidance on combining the buffer technology with existing action plans under the Nitrates Directive. The team will work closely with a network of experts tackling the same problems in other climate and geological zones in the EU.

Expected results:

- A 50% reduction in nitrogen in the river and a 70% reduction of nitrates;
- Reduction in erosion of 80%, compared with untreated watershed;
- A 30% reduction in the amount of fertiliser used on farms;
- 25 tonnes of biomass generated annually for every 5 ha treated;
- Demonstration of cost-efficiency of buffer technology; and
- Guidance tools for the implementation of measures for preventing nitrogen-pollution.

Elastomeric “Eco-Friendly” Material based on End-Of-Life Tyres blended with organic Bind Resin for Railway Applications

Project background

According to the European Tyre and Rubber manufacturers' Association (ETRMA), more than 3.4 million tonnes of end-of-life tyres (ELT) are generated in Europe each year. Inappropriate disposal of these tyres can cause major environment problems, such as pollution arising from incineration or landfilling.

The European Commission's 2008 Waste Framework Directive (2008/98/EC) states that ELT should no longer be considered as waste. Instead they should be used as secondary material for new applications. This implies a pressing need to explore and develop new uses for ELT and environmentally friendly processes for delivering useable materials.

Laboratory experiments have already demonstrated the successful production of an “eco-friendly” elastomeric (rubber) material, made from a blend of end-of-life tyres and resin.

Project objectives

The overall objective of the RECYTRACK project is to demonstrate the successful use of an elastomeric material made of end-of-life tyres blended with resin in the railway industry. The project hopes to show that this application is technically and economically feasible and also produces environmental benefits.

The project will firstly work to identify the technical, environmental and economic requirements of the whole value chain. It will conduct further testing to validate the effectiveness and adequacy of the laboratory prototypes of the recycled material. Other preparatory work will include more detailed technical design of the product for the specific uses foreseen (i.e. in isolated blocks and mats used in the railway industry).

Based on this preparatory work, the project team expects to manufacture the isolated blocks and mats in the required quantities. Quality checks will be carried out to ensure that the manufactured products meet the technical, safety and aesthetic requirements of the industry. Provided the products meet these requirements, they will be tested on two railways in different regions of Spain. The two tests sites will have different railway typologies: slab-track and ballast-conventional systems. A continuous monitoring plan will assess and validate the use of these innovative products in this context.

LIFE10 ENV/ES/000514
RECYTRACK



Beneficiary:

Type of beneficiary

Large enterprise

Name of beneficiary

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Duration of project:

42 months (01/10/2011 - 30/03/2015)

Total budget in euro:

1,583,981.00

EC contribution in euro with %:

728,128.00 (45.97 %)

Generic theme:

End-of-Life Vehicles (ELV's) and tyres

The project will also conduct a lifecycle assessment, which will take account of the energy consumption and emissions associated with original production of a tyre, as well as with its collection, transport, processing and use at its end-of-life.

Expected results:

- The successful demonstration of the use of processed recycled tyres in industrial applications on railways;
- A minimum recycling of 365 000 tyres for use within the railway industry over the next 10 years;
- Associated economic benefits of €5 824 000 over the same period;
- Demonstration of the significant environmental benefits of this recycling method over the lifecycle of tyres;
- Contribution to the application of the EU's Waste Framework Directive; and
- Identification of other potential uses of the recycled elastomeric material, based on its demonstrated mechanical and vibro-acoustic properties.

New Generation of New-Jersey Safe-Barriers Using Recycled Materials and Rubber from End-Of-Life Tyres

Project background

Europe generates some 3.4 million tonnes/yr of part-worn and end-of-life tyres (ELT), of which about 3 million tonnes are either recycled or recovered. The Waste Framework Directive (2008/98/EC) establishes that ELT must now be considered as a resource, providing secondary material for new applications.

In 2008, Europe also produced 24.9 million tonnes of plastic waste, up to 12 million tonnes of which went to landfill, or ended up in the environment through uncontrolled disposal. One particular form of plastic waste is generated from disposal of coated and insulated cables. These use low-density polyethylene (LDPE), which is applied in areas that require flexibility, tensile and impact strength, and resistance to deformation, corrosion, abrasion, chemicals and mineral build up.

A Jersey barrier is a protective barrier used to separate lanes of traffic and to prevent vehicles from leaving the road. They are typically made from reinforced concrete and designed to minimise vehicle damage on impact.

Project objectives

The aim of the NEW JERSEY project is to demonstrate and validate a new generation of eco-friendly Jersey safety barriers made from recycled rubber tyres, recycled plastic and concrete. It aims to show that these materials are not only more environmentally friendly, but show improved impact absorption performance in the case of traffic accidents.

The design of the new barrier consists of a recycled plastic case covered with a thick layer of elastic material made from recycled rubber and resins. The case will be filled with heavy material made from a mixture of concrete and scrap tyres. Recovered rubber chips from tyres will be used for the production, by thermal processes, of the innovative composite products. These will first be developed at laboratory scale, before scaling up.

A Lifecycle Analysis will be carried out to evaluate the environmental benefits of the new products in comparison with the current industry standard. The project expects the new barriers to demonstrate improved safety and technical standards in comparison with current concrete barriers, mainly due to the elasticity of the rubber materials and the improved absorption capacity.

LIFE10 ENV/ES/000515
NEW JERSEY



Beneficiary:

Type of beneficiary

Regional authority

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Duration of project:

45 months (01/10/2011 - 30/06/2015)

Total budget in euro:

1,900,654.00

EC contribution in euro with %:

839,286.00 (44.16 %)

Generic theme:

End-of-Life Vehicles (ELV's) and tyres

The project hopes to see the barriers installed on Spanish roads and to become the best product on the market across the EU, bringing quality, safety and environmental benefits.

Expected results:

- Reduction of waste from ELT through recycling and reuse;
- Reduction of plastic waste from insulated cables through recycling;
- Reduction in demand for new raw materials for production of concrete barriers;
- The use of plastic and rubber wastes as raw materials for a new application;
- Easier installation of road safety barriers, reducing their associated carbon footprint; and
- Improved energy-absorption of crash barriers, reducing damage to vehicles on impact.

Polymer Wastes in Asphalt Mixes: a Way to Increase Sustainability of Roads Infrastructures

Project background

Polymers are currently recycled at rates of only a few percent in most countries, which means they are rapidly accumulating in landfill. They take an extremely long time to break down, so these landfills become all-but permanent. At the same time, they have a significant impact on the environment, gradually contaminating soil and water over time.

There are more and more polymer-based products on the market, often with increasingly short lifespans, as new products emerge and replace old ones at a rapid rate. However, the continued use of landfill for the disposal of these polymer-based products not only increases their lifecycle environmental impact, but also undermines the opportunity to take advantage of possible reuses of these materials.

One potential reuse of polymers is as an ingredient in asphalt mixes. In Spain alone, about 45 million tonnes of asphalt mixes are produced annually. In Europe the figure is some 300 million tonnes.

Project objectives

The aim of the POLYMIX project is to demonstrate new environmentally friendly asphalt mixes using polymer waste. By providing an avenue for its reuse, the project seeks to reduce environmental problems associated with polymer waste.

The project will work with several types of polymeric waste: polyethylene; polystyrene; and polypropylene, as well as end-of-life tyres. It will create several asphalt mixes, modified with recycled polymeric waste at laboratory scale. Testing and evaluation of these new mixes will be carried out to characterise the performance changes associated with different mixers and polymer additions.

The project will select the most appropriate mixes for industrial use and will design the up-scaling process to manufacture the mixes for pilot scale demonstration. The new asphalt mixes will be tested, monitored and evaluated in four real life scenarios. It is expected that successful asphalt mixes will provide better physical and mechanical properties than conventional asphalt.

The project team will also carry out a lifecycle assessment for the mixes, developed to pilot scale as well as

LIFE10 ENV/ES/000516
POLYMIX



Beneficiary:

Type of beneficiary

University

Name of beneficiary

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Name of contact person

Daniel CASTRO FRESNO

Duration of project:

43 months (01/09/2011 - 31/03/2015)

Total budget in euro:

1,535,225.00

EC contribution in euro with %:

760,090.00 (49.51 %)

Generic theme:

Packaging and plastic waste

an economic cost-benefit analysis. It is expected that the project will demonstrate economic benefits from using the waste material, reducing the costs associated with asphalt production.

Expected results:

- The production of asphalt with 1% recycled polymers and 0.5-1.0% used tyres;
- Demonstration of the economic and technical benefits of using new mixes in a real-life situation;
- Assuming a market penetration of 5%, the project will lead to the recycling of more than 22 500 tonnes of plastic waste and 11 250 tonnes of used tyres;
- Guidelines for the production of asphalt mixes using recycled polymers, and criteria for including these solutions in green public procurement procedures; and
- A reduction in the amount of polymer waste going to landfill.

Assessment and improvement of the urban water cycle eco-efficiency using LCA and LCC

Project background

Urban water activities - extraction, wastewater treatment, drinking water treatment, transport and distribution etc. - are essential to ensure both a reliable supply of drinking water and compliance with quality regulations when discharging water to water bodies. However, all the processes involved in the urban water cycle also have environmental impacts, as they consume electricity and chemicals and generate waste.

There is, therefore, a need to improve understanding of the existing balance between the environmental and health benefits of the different activities of the urban water cycle with their environmental impact. A lifecycle approach is needed to ensure that the overall environmental cost-benefit of urban water activities is positive.

But it is not sufficient to consider just one environmental indicator, such as the carbon footprint, over the lifecycle. Environmental performance assessments should include all the significant impacts related to the activities involved throughout the urban water system. This knowledge will help decision making to assess, for example, whether it is worth improving water quality at the expense of increasing the consumption of energy and chemicals.

Project objectives

The main objective of the project is to provide decision-making tools to optimise eco-efficiency in the urban water cycle, through environmental and economic lifecycle analysis (LCA). It thus seeks to provide for more sustainable management of the urban water cycle.

The project will work to assess all the major environmental impacts of the lifecycle of urban water systems, including on: global warming; terrestrial and water toxicity; eutrophication; acidification; and depletion of resources. It will also assess the potential to reduce these impacts. It will also assess the economic impact of the different operations, in terms of operating costs, capital costs and other indirect costs throughout the lifecycle, and identify possible cost savings.

To support lifecycle assessment by non-experts, the team will define appropriate indicators to monitor and evaluate environmental and economic efficiency and a user-friendly support tool. This will enable policy makers and public and private water managers to make better decisions and produce overall eco-efficiency gains.

LIFE10 ENV/ES/000520
AQUAENVEC



Beneficiary:

Type of beneficiary

Research institution

Name of beneficiary

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Duration of project:

36 months (01/01/2012- 31/12/2014)

Total budget in euro:

1,594,413.00

EC contribution in euro with %:

789,456.00 (49.51 %)

Generic theme:

Waste water treatment

The tool will be demonstrated in two case studies in Mediterranean and Atlantic locations and validated with additional case studies from stakeholders to obtain a generic tool applicable to any city. The project expects to show that by measuring the lifecycle impact of the urban water cycle, the tool will help to identify the most cost-effective processes and technologies, with the least environmental impact, and promote the sustainable use of natural resources and the reuse of end-products such as sludge and wastewater.

Expected results:

- A demonstrated common methodology for assessing the eco-efficiency of the urban water lifecycle, including quantifiable indicators;
- A user-friendly tool for non-expert lifecycle eco-efficiency assessments;
- A lifecycle inventory database for urban water cycles;
- Recommendations of case-specific best practices to improve the eco-efficiency of urban water systems in small-medium cities.

Development and validation of advanced monitoring system for control of organic priority pollutants in treated wastewater effluents

Project background

Currently, the monitoring of priority pollutants in water systems generally involves ad-hoc analysis of water samples collected within specific monitoring campaigns.

However, the implementation of the EU's Water Framework Directive (WFD) requires Member States to gain a better understanding of priority pollutants entering surface waters. The WFD requires the establishment of monitoring strategies that combine surveillance with operational and investigative monitoring. A list of 33 priority pollutants has been published and their presence must be monitored and limited in water bodies on an ongoing basis.

The current technologies available to determine the presence of these pollutants in water bodies are time-consuming and expensive to operate. They can also miss the detection of accidental spills. On-line technologies could provide a valuable alternative for measuring the presence of contaminants.

Project objectives

The main objective of the AQUATIK project is to test new methods and techniques for the monitoring of selected priority pollutants in water. The project seeks to develop a new automated prototype to measure pollutants discharged in wastewater effluents and related spills in quasi-real time.

From the WFD list of priority pollutants, the project will focus on seven, including pesticides, alkylphenols and phthalates. These have been selected due to their widespread presence in waters, especially in the study area.

The project will design and construct an automated self-controlled device for the detection of the selected priority substances. It will then demonstrate the prototype at selected trial sites at the Besòs and El Prat wastewater treatment plants (Barcelona, Spain).

The project team will test the feasibility of using passive samplers and on-site preconcentration to determine average concentration of alkylphenols, nonylphenol and octylphenol, the phthalate DEHP, and the pesticide atrazine. The operation and performance (including economic) of the device will be evaluated and compared with traditional methods.

LIFE10 ENV/ES/000521
AQUATIK



Beneficiary:

Type of beneficiary

Research institution

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Susana GONZÁLEZ BLANCO

Duration of project:

40 months (01/09/2011 - 31/12/2014)

Total budget in euro:

1,564,259.00

EC contribution in euro with %:

775,879.00 (49.60 %)

Generic theme:

Risk assessment - Pollution control

It is expected that the prototype will reduce the time required to evaluate the presence and concentrations of the pesticides simazine, diuron and isoproturon. It should thus prove itself to be suitable for application on a wide scale, as a routine monitoring tool covering the sampling, filtering, detection and measurement steps.

Expected results:

- Demonstration of the validity and feasibility of instrumentation to rapidly measure concentrations of priority pollutants in water;
- Improved decision-making around pollution control, including an alert system for contamination from quasi-real time monitoring; and
- Guidelines and methodologies for the selection, implementation, operation and optimisation of the methodology.

Innovative Urban Waste Treatment: A Sustainable Approach Using Hydrodynamic and Biological Technologies

Project background

Selective collection of Urban Solid Waste (USW) is already an established practice in several countries, which manage organic matter, glass, plastics and paper as separate residues that have their own channels of recovery and treatment. Yet, there is still a substantial amount of waste - the rest fraction - that is not sorted at source and that needs to be managed. A significant portion of this solid rest fraction goes to landfill or for incineration containing a high percentage of organic matter, despite the fact that waste treatment facilities do exist.

Project objectives

The URWASTECH project aims to demonstrate a more efficient and sustainable treatment of the rest fraction from sorted urban solid wastes. It aims to integrate the treatment of this fraction with wastewater management in an urban waste processing pilot plant.

The project will use a hydro-mechanical separation technique and biological treatment processes, including anaerobic digestion, membrane biological treatment and wetland technologies.

Wastewater will be used as solvent for the proposed USW treatment. This not only avoids the need for clean water consumption in the hydro-mechanical treatment, but also provides a higher organic content to facilitate anaerobic digestion. The project also aims to improve the efficiency of hydro-mechanical separation so as to reduce the percentage of undesirable non-organic materials entering the anaerobic digester.

Optimisation of processes will ensure the delivery of a number of high-quality and valuable by-products, including: biogas for use as a renewable energy source, potentially compostable waste biomass, depurated water, and separated plastics and metals, which may be reused or recycled.

By improving the value of USW and wastewater, the technology will promote the sustainable management of a greater amount of sorted material. This should result in a reduction in the percentage of urban waste being sent to landfill. Furthermore, waste that is sent to landfill will have a reduced organic content, thus

LIFE10 ENV/ES/000530
URWASTECH



Beneficiary:

Type of beneficiary

Research institution

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Name of contact person

Dirk SASETA

Duration of project:

30 months (01/10/2011 - 01/04/2014)

Total budget in euro:

1,514,849.00

EC contribution in euro with %:

756,174.00 (49.92 %)

Generic theme:

General: waste management

reducing the environmental threat from the leaching of contaminants to the soil.

Expected results:

- Demonstrated feasibility of an innovative system for the combined treatment of the rest fraction of urban solid waste and wastewater;
- Definition of optimum conditions for increasing the quality and quantity of by-products;
- Reduction in the amount of USW sent to landfill and associated threats from leachate;
- Depurated water as a by-product with many potential uses;
- Production of more than 150 m³ of biogas per tonne of residue, capable of producing twice as much energy as is needed to run the pilot treatment plant;
- Waste biomass that can be used as compost; and
- Separated metals and plastics that can be recycled or reused.

Life without oil: Slide in - energy efficient and fossil-free public transportation for a sustainable society

Project background

Greenhouse gas (GHG) emissions have been reduced in all main sectors in the EU15 except transport. The continuing expansion of public transport is expected to add to the challenge of reducing emissions in this sector. However, increasing electrification is likely to be beneficial, as the source of the energy required is flexible and the amount of energy used for transportation can be reduced.

Project objectives

The main aim of the SLIDE IN project is to demonstrate how GHG emissions, and other forms of air pollution, can be reduced through the introduction of a new concept for public transport, a technology that allows batteries to be charged while an electric vehicle is in use ("sliding in").

The project will also demonstrate how the "SLIDE IN" concept can be used in Europe to establish a flexible and cost-effective bus system, using existing infrastructure. The concept is expected to have considerable advantages over ordinary diesel buses in terms of emissions, noise and reliability. SLIDE IN can reduce energy use for transportation by more than 50%.

The concept will be tested in two different cities in Sweden: on the trolley bus electric lines in Landskrona, and on the electric tram lines in Lund. The bus route in Landskrona will be arranged so the vehicle operates on battery alone for about 10 km, before returning to the electric line to recharge the batteries. In the second stage, two years into the project, the bus will be adapted so that it can slide into the existing electric lines of a tramway system.

The bus will also be equipped with a fleet management system in order to keep track of data, such as battery capacity, temperature, and driving distances. The project will assess the future potential for implementing the technology for buses, cars and lorries across Europe and will train at least six bus drivers in how to use the new bus and in "eco driving".

Expected results:

The introduction of SLIDE IN buses will reduce CO₂ emissions by at least 5.76 tonnes/yr. Eco-driving training is expected to lead to a further reduction in CO₂

LIFE10 ENV/SE/000035
SLIDE IN



Beneficiary:

Type of beneficiary

University

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Lars MONTELIUS

Duration of project:

52 months (01/09/2011 - 31/12/2015)

Total budget in euro:

1,665,373.00

EC contribution in euro with %:

729,179.00 (48.02 %)

Generic theme:

Reduction of emission of greenhouse gases

emissions of 0.29-0.58 tonnes/yr. The cumulative impact will be at least 26.3 tonnes of CO₂ emissions reduced during the lifespan of the project.

Additional environmental improvements will include a reduction of 229.8 kg/yr of NO_x and 2.82 kg/yr of PM₁. Moreover, nano-particulate reduction will occur in proportion to the NO_x reduction, thus leading to improvements of public health. A decrease in noise pollution will also be achieved through the introduction of a quieter and more efficient technology.

Public healthcare and plastics makers demonstrate how to remove barriers to PVC-free blood bags in the spirit of REACH

Project background

The presence of Polyvinyl chloride (PVC) in blood bags causes exposure to DEHP plasticiser and PVC plastics during blood transfusions. In an oligopolistic market structure, suppliers have limited incentives to improve their environmental performance. This is particularly true when new innovations compete with their existing products and represent a marginal percentage of their future turnover.

Project objectives

The environmental problem specifically addressed by this project is the lack of incentives among blood bag manufacturers to create PVC-free blood bags. The first objective of the PVCFreeBloodBag project is to demonstrate that public healthcare organisations and private plastics manufacturers can co-operate in removing barriers to a PVC-free blood bag. This innovative policy approach is a response to the EU's REACH Regulation. If the innovative PVC-free blood bags prove to be too expensive for general use, they will be proposed for use by vulnerable groups. These include pregnant women, premature babies and people with chronic disease. The biggest use of blood bags is for haemodialysis. In the EU there are some 150 000 people that depend on frequent dialysis.

The project also aims to offer a material that manufacturers can use to replace PVC in other blood contact applications, as well as in other medical applications. Such applications may use 10 times more PVC than the amount used for blood bags. It will also offer the new material for use in food industry applications; the main source of exposure to DEHP/PVC is from contaminated food. Food contains DEHP derived from environmental contamination and bioaccumulation along the food chain, as well as from leaching during manufacturing, packaging and storage.

Expected results:

- Demonstration of cooperation between public healthcare providers and specialist companies in working to remove barriers (such as the disinterest of major suppliers) to the emergence and uptake of green innovations;
- The creation and CE accreditation of a prototype PVC-free blood bag, which has been tested in-vitro to ensure suitability for blood storage;

LIFE10 ENV/SE/000037
PVCFreeBloodBag



Beneficiary:

Type of beneficiary

Public enterprise

Name of beneficiary

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Duration of project:

48 months (01/09/2011 - 01/09/2015)

Total budget in euro:

2,204,464.00

EC contribution in euro with %:

1,091,040.00 (49.49 %)

Generic theme:

Clean technologies

- Demonstration of the profitability of clinical testing of the PVC-free blood bags;
- Documented interest in applying the new blood bags from at least 15 organisations in five EU Member States;
- Demonstrated support for replacing PVC blood bags with the new bags, as well as generally substituting PVC in the medical sector;
- Achievement of 10% market share for PVC-free blood bags in Europe five years after the project ends.

Waste to fuel - turning climate hazardous landfills to promoters for development of climate friendly transportation solutions

Project background

Climate change is one of the four priority areas in the Sixth Environment Action Programme of the European Community 2002-2012 (6th EAP). The 6th EAP recognises climate change as "an outstanding challenge for the next 10 years and beyond". According to the latest UNFCCC statistics, the EU-27 emitted 4 247 million tonnes of CO₂ equivalents in 2006, of which Sweden accounted for some 51 million tonnes. A decrease of just 2% has been recorded since 1990. In many developing countries there have been major increases in greenhouse gas (GHG) emissions.

Project objectives

The project's main objective is to demonstrate a holistic approach to the production of Liquefied Bio-Gas (LBG) from landfill gas, and its consumption in heavy vehicles. The project will demonstrate innovative approaches to landfill gas detection and extraction, as well as developing a full-scale plant for the conversion of landfill gas to LBG by cryogenic CO₂ Wash technology. The project also aims to establish a user-friendly LBG filling station and to carry out LBG heavy vehicle tests and operations.

Specific objectives of the project include:

- Demonstrating a holistic approach to the use of landfill gas as LBG in heavy vehicles;
- Demonstrating methods and techniques for estimating the quantity and generation rate of landfill gas;
- Optimising and maximising the extraction of landfill gas; Establishing, testing and demonstrating a full-scale facility for purifying and liquefying landfill gas;
- Producing LBG for use in heavy vehicles;
- Establishing and demonstrating a user-friendly LBG filling station for heavy vehicles;
- Demonstrating and evaluating the performance of LBG in dual-fuel heavy vehicles;
- Identifying alternative uses for by-products from LBG production;
- Contributing to the expansion of the national market for LBG by stakeholder involvement; and
- Disseminating information and results across the EU and contributing to EU policy-making and the implementation of this technology in the EU.

LIFE10 ENV/SE/000038

Wastetofuel



Beneficiary:

Type of beneficiary

Public enterprise

Name of beneficiary

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Håkan ROSQVIST

Duration of project:

36 months (01/09/2011 - 31/08/2014)

Total budget in euro:

3,297,613.00

EC contribution in euro with %:

1,261,556.00 (38.26 %)

Generic theme:

Reduction of emission of greenhouse gases

Expected results:

- Emissions reductions of 85 000 tonnes/yr CO₂e from landfills in Skåne;
- Emissions reductions of 33 000 tonnes/yr CO₂e from heavy vehicles in Skåne;
- Increase of LBG production in Skåne by 135 GWh;
- Increased interest in and the establishment of a conversion plant for LBG production from landfill gas;
- The identification of offset possibilities and markets for by-products from LBG production;
- A full environmental, economic, and technical assessment of the production of LBG from landfill gas;
- Increased consumption of LBG, with 40 additional LBG-fuelled vehicles operating in Skåne by the end of the project, including nine demonstration vehicles; and
- At least one or two other practitioners in the EU starting to develop sustainable landfill gas use systems by the end of the project, based on its models and technologies.

Hyper Bus - Hybrid and plug-in extended range bus system

Project background

Growing concerns in Europe and worldwide over the security of energy supply, climate change and health are leading to a shift from fossil fuels to alternative fuels, and are driving the development of new and more sustainable road vehicle propulsion systems. At present, urban traffic is responsible for 40% of CO₂ emissions and 70% of emissions of other pollutants arising from road transport. Transport is especially vulnerable to oil supply disruption and price volatility. Despite considerable progress in reducing emissions of harmful pollutants, there remain concerns about air quality and noise, especially in urban areas. Air and noise pollution is getting worse year by year.

Project objectives

The main objective of the HYPER BUS project is to demonstrate a pilot fleet of innovative public transport vehicles (buses) that combine outstanding performance with low-energy consumption. This will be achieved by introducing hybrid buses with a newly developed plug-in technology, which makes it possible to electrify a major part of the city bus lines. The project will demonstrate that this technology can contribute to reducing harmful emissions from European city public transport systems.

The project will demonstrate:

- A new plug-in technology for hybrid buses – the complete vehicle will be optimised to ensure high standards of drivability, performance, durability and safety;
- A fast charging service for the buses – a reliable and efficient solution for charging is of crucial importance for the future use of plug-in technology. An effective service must take account of the location of the charging system, as well as safety, time efficiency, environmental and spatial considerations.

The new hybrid plug-in technology and charging service will be demonstrated on an existing public bus route. The ultimate goal of the project is to test both of these important factors in city traffic.

Expected results:

The project will achieve the following results (compared to state-of-the-art technology):

LIFE10 ENV/SE/000041
HYPER BUS



Beneficiary:

Type of beneficiary

Development agency

Name of beneficiary

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Duration of project:

37 months (01/09/2011 - 30/09/2014)

Total budget in euro:

3,249,062.00

EC contribution in euro with %:

1,545,780.00 (47.58 %)

Generic theme:

Urban design - Quality of life - Transport planning

- Reduced CO₂ emissions: reduced fuel consumption, combined with electricity generated from renewable sources, will reduce CO₂-emissions by 75% compared to standard diesel vehicles;
- Improved energy efficiency: 60% less energy consumption than standard diesel buses;
- Reduced emissions of dangerous substances: a substantial reduction in diesel consumption, combined with more favourable driving conditions, will result in a at least a 75% reduction in average tailpipe emissions of NO_x, PM, HC and CO;
- Less noise: electrical operation, which can cover 65% of the route, will radically decrease noise from buses, especially in sensitive areas. Electric powered take offs from bus stops will also contribute significantly to reducing noise pollution;
- Zero-emission areas: in selected areas, the buses will run on electricity only, making these "zero emission" areas.

Hydrofluss - Regeneration of hazardous waste into valuable raw material for the European steel industry

Project background

Waste has been the focus of EU environment policy for the past 30 years and substantial progress has been made. Heavily polluting landfill sites and incinerators have been cleaned up and new techniques have been developed for the treatment of hazardous waste. Particular attention has been paid to the removal of hazardous substances from vehicles and electrical and electronic equipment. The levels of dioxins and other emissions from incineration are also being reduced.

Waste is now increasingly seen as a valuable resource for industry. Reuse, recycling and energy recovery are increasingly being applied to regulated wastes. Diversion of biodegradable waste from landfill and increasing recycling and recovery are also contributing to reducing greenhouse gas emissions.

Project objectives

The main objective of the HYDROFLUSS project is to demonstrate the recycling of filter cakes, which are commonly considered as a toxic and non-recyclable hazardous waste. The project will demonstrate how this hazardous waste can be transformed into a valuable and useful commodity. The project will also demonstrate the feasibility of replacing virgin minerals with the recycled material. This process will enable steel plants to replace up to 50% of their consumption of the mineral fluorspar (which is considered a virgin mineral, currently mined and transported from China) with the recycled material. Furthermore, the project will show that that the material can be recycled up to 3-4 times, further minimising the extraction of mineral resources.

The project will demonstrate a globally accepted vacuum extraction technology that could also have potential applications in different industries and for different waste products.

The pilot recycling plant, which will be constructed and tested during the project, will be mobile in order to facilitate technological demonstration to identified European target groups. It will also allow other plants to integrate this process into their functions, thereby extending the uptake.

Expected results:

The main result of the project will be to demonstrate how large volumes of hazardous waste can be transformed into a valuable and useful commodity. This

LIFE10 ENV/SE/000042
HYDROFLUSS



Beneficiary:

Type of beneficiary

International enterprise

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Duration of project:

40 months (01/09/2011 - 31/12/2014)

Total budget in euro:

4,024,090.00

EC contribution in euro with %:

1,557,425.00 (38.70 %)

Generic theme:

Hazardous waste

means that the European steel industry will be able to replace up to 50% of virgin material transported from China with recycled material that is a by-product of its own manufacturing processes.

Other expected results include:

- Demonstration of the recycling of 4 000-5 000 tonnes of hazardous waste;
- Demonstration of a 100% fossil fuel free process;
- Almost 100% removal of crystalline water during all stages;
- An almost 100% dust free and physically stable product during all stages; and
- Demonstration of the potential of using renewable energy resources or excess steam from waste incineration: 80% of the energy requirement will come from excess steam produced during incineration of waste, and 20% from electricity generated from the incineration of waste. This will translate into lower treatment costs in the long term.

Livewell plate for low impact food in Europe

Project background

Food consumption patterns in Europe are currently unsustainable. The EU Environmental Impact of Products (EIPRO) report calculates that the food sector as a whole in the EU (considering the entire supply chain from “farm to fork”) accounts for some 31% of EU greenhouse gas (GHG) emissions and 20-30% of most categories of environmental burden. Few consumer campaigns focus on the environmental sustainability of European diets in terms of factors such as water resources and climate change impacts. However, developing a better understanding of what constitutes a sustainable diet is essential for a healthy population, environmental sustainability, and food and energy security.

Sustainability criteria for food systems have been developed in the UK, and more work is required to determine the composition of sustainable diets across the EU.

Project objectives

The main objective of the ‘LiveWell for LIFE’ project is to reduce GHG emissions from the EU food supply chain. This will be achieved by demonstrating sustainable diets for EU Member States, promoting a supportive policy environment, developing tangible pathways for the implementation of sustainable diets, and disseminating this knowledge widely across the EU. Pilot actions in France, Sweden and Spain will help to improve and consolidate existing knowledge about links between food consumption and environmental sustainability, particularly with respect to climate change.

Expected results:

- The project will demonstrate country-specific sustainable diets. These will be prepared with inputs from the network of European food stakeholders. A feedback mechanism will be embedded in this process and a LiveWell Plate tool will be adapted accordingly;
- Other key outputs planned will lead to the development of at least five EU policy options for the adoption of sustainable diets across the EU;
- Cost-benefit analysis reports will be produced for these diets to highlight the social and economic impacts of adopting at least four practical implementation options in each pilot country;

LIFE10 ENV/UK/000173
LiveWell for LIFE



Beneficiary:

Type of beneficiary

NGO-Foundation

Name of beneficiary

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Duration of project:

42 months (01/10/2011 - 30/03/2015)

Total budget in euro:

2,078,844.00

EC contribution in euro with %:

1,039,422.00 (50.00 %)

Generic Theme:

Reduction of emission of greenhouse gases

- The economic benefits of adopting at least four public policy options in the EU will also be highlighted; and
- Extensive dissemination activities will help to raise awareness of the project results.

Company level environmental accountability reporting and information

Project background

Parent companies and their subsidiaries can play a key role in combating many environmental problems. It is recognised that influencing decisions at the highest level of accountability, ultimately the board of the parent company, can be highly effective in bringing about far-reaching improvements in environmental performance.

A single business or a geographical area is subject to a range of environmental laws each requiring different datasets for permitting, compliance, monitoring, incidents and enforcement. A challenge facing regulators is that the data that they gather to support the implementation of specific environmental laws do not easily or usefully align with the businesses they regulate or the geographical areas where improvements to the environment are needed. Instead regulators are limited to looking at data in isolated, disconnected datasets which prevents them from seeing clearly the environmental performance of a whole company or the environmental impacts on a region. Integrated data and information can provide regulators with the evidence to best target resources to protect the environment and people by offering a clear view of those businesses that are performing well and those that are performing badly.

Project objectives

The CLEAR Info project will demonstrate a system for integrating and analysing the site level data the EA collects as an environmental regulator, providing information to drive improvements in parent company performance. The project will allow European regulators to share data across regulatory boundaries and build an understanding of corporate performance. In this way it will be able to influence business decisions in the boardroom and enhance the importance of environmental risk in financial markets. While developing better reporting systems, the EA will review and streamline data collection to reduce the burden on business. CLEAR Info will improve the knowledge base for environmental policy by transforming disparate site and subsidiary data into influential information on parent companies operating across Europe and globally. In particular, CLEAR Info will deliver: Information from environmental data to improve parent company performance; information from environmental data to influence investment decisions in the finance sector; and improvements in quality, efficiency, access to and exchange of data and information

LIFE10 ENV/UK/000175
CLEAR Info



Beneficiary:

Type of beneficiary

Regional authority

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Martin BROCKLEHURST

Duration of project:

35 months (09/01/2012 - 19/12/2014)

Total budget in euro:

3,225,833.00

EC contribution in euro with %:

1,612,916.00 (50.00 %)

Generic Theme:

Integrated environment management

Expected results:

The project is expected to:

- Involve relevant stakeholders at key points during the project to ensure the integration of the right sources of data and deliver useful company information;
- Integrate environmental data derived from separate but related regulatory activities;
- Turn integrated data into information that will promote effective implementation of EU environmental legislation and improve the knowledge base for environmental policy;
- Reduce the regulatory burden on business and communicate the link between data demands and EU environmental legislation and policy objectives; and
- Work with others in Europe to implement the INSPIRE Directive and Shared Environmental Information Systems by improving access to, exchange and effective use of data and information within a standardised spatial infrastructure.

Ensuring quality of waste-derived products to achieve resource efficiency

Project background

A quality protocol sets out how to recover waste and turn it into a useable product. It defines the point at which waste ceases to be waste and when it can be used again as a normal product.

The UK Environment Agency's Waste Protocols Project (WPP) has established nine end-of-waste Quality Protocols and has another nine under development. Waste types already covered by protocols include biodegradable waste compost, blast furnace slag, wood waste, and non packaging plastics. Such waste is recycled to produce products for use in sectors such as agriculture, construction, energy and manufacturing. By applying the waste protocols method, industry gains confidence that the waste-derived products they create have ceased to be waste and can be sold, supplied and used without waste regulatory controls.

By 2020, the benefits to England and Wales from the WWP are estimated at around £1 billion in business savings and increased sales of waste-derived products. Simultaneously, it should divert 17 million tonnes of waste from landfill, preserve 14 million tonnes of raw materials and avert 2.1 million tonnes of carbon dioxide equivalent emissions.. However, if more was done to help industries apply waste protocol methods themselves, it is estimated that the impact could be much greater.

Project objectives

The EQual LIFE project plans to build on the WWP methodology and increase the range and volume of materials that are recycled in Europe. New protocols will be developed and promoted. By increasing industry's ability to produce, and consumer confidence to use quality waste-derived products, EQual will help deliver the EU's Waste Thematic Strategy.

Specific objectives include:

- Demonstrating the environmental benefits of waste-derived products through a series of field trials on four new Quality Protocol compliant materials. The evidence gathered will be used to feedback into Quality Protocol reviews and the findings shared with European partners as case studies;
- Helping industry to self-assess their compliance with Waste Quality Protocols with the aid of a new Quality Protocol compliance e-tool and handbook;
- Giving customers greater confidence in new waste-derived products produced to Quality Protocol standards,

LIFE10 ENV/UK/000176
EQual



Beneficiary:

Type of beneficiary

Regional authority

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Martin BROCKLEHURST

Duration of project:

37 months (12/09/2011- 24/10/2014)

Total budget in euro:

2,947,815.00

EC contribution in euro with %:

1,473,907.00 (50.00 %)

Generic Theme:

General: Waste management

by developing check lists for customers to confirm the product they are purchasing is no longer waste;

- Demonstrating a successful methodology for making end-of-waste decisions, by developing a new End of Waste e-tool and implementation guide, designed to enable businesses to make their own end-of-waste decisions and create their own bespoke end-of-waste Quality Protocols. This will remove the need for case by case decision making by the Environment Agency; and
- Communicating and disseminating the EQual project findings to stakeholders and relevant audiences in Europe.

Expected results:

Using an expanded waste protocols concept, and related new method and tools, EQual will produce a methodology capable of empowering industry to use waste-derived products without the need to apply waste controls.

Scotland's environmental web

Project background

The availability of reliable, accessible and timely data is a key factor in formulating good environment policy. A vast range of environmental data is being collected across Europe and this generates valuable information for policymakers, citizens and business. To maximise the use of this information, the European Shared Environmental Information System (SEIS) aims to interconnect existing databases and make data easily accessible to all.

Project objectives

This SEWeb project aims to develop an advanced environmental information system that will be used to deliver four key objectives:

- To expand access to the European SEIS. This will help to make current data on Europe's environment available to Scottish stakeholders;
- To improve the effectiveness of policy development and the targeting of environmental measures in order to maximise the delivery of environmental, social and economic benefits;
- To engage the public in the protection of the environment and thereby improve its understanding of environmental issues at the Scottish and European level; and
- To develop an extended partnership approach for monitoring, assessing and protecting the environment.

Expected results:

- Key results will include the building of an innovative multi-sectoral partnership that allows the SEIS to be used as a means of prioritising environmental problems, based on the environmental, social and economic information collected by SEWeb;
- This will support the development of policy and the coordination of policy measures by providing a better understanding of the wider implications of environmental change;
- The project will also promote public use of SEWeb in order to foster a better understanding of important EU environmental issues; and
- SEWeb will be used as a reporting tool for information required by the European Environment Agency (EEA).

LIFE10 ENV/UK/000182
SEWeb



Beneficiary:

Type of beneficiary

Regional authority

Name of beneficiary

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Duration of project:

36 months (01/09/2011- 31/08/2014)

Total budget in euro:

4,876,006.00

EC contribution in euro with %:

2,351,950.00 (48.24 %)

Generic Theme:

Other area - Land use development and planning



KH-AT-11-001-EN-N

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Luxembourg: Publications Office of the European Union, 2011

ISBN 978-92-79-20030-4

ISSN 1977-2319

doi:10.2779/91667

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