Annex* LIFE programme: 2016 projects

Brussels, 28 September 2017

Annex LIFE programme: 2016 projects

**The list of projects is correct at the time of publication; further LIFE projects may subsequently be funded from the reserve list. This information will be available on the LIFE website.*

Budget figures are rounded to the nearest 100,000. Due to rounding, some totals may not correspond with the sum of the separate figures.

BELGIUM (BE) (3 projects – 14.8 million)

LIFE Climate Change Adaptation (1 project – 8.5 million)

Increasing climate change resilience on the Scheldt estuary (LIFE SPARC)

Climate change could have a huge environmental and socio-economic impact on the Scheldt estuary and its highly urbanised river banks. Increasing resilience means implementing nature-based solutions appropriate to tidal rivers, as proposed by the EU Floods Directive. This means creating areas that can safely fill with water during flooding, decreasing river levels and reducing the risk of flooding in towns and cities. Restoration of tidal mud flats will make ecosystems more robust and safeguard valuable ecosystem services and protected species.

Project summary

LIFE Climate Change Mitigation (2 projects – 6.2 million)

Harmonising regulation of climate-friendly refrigerants (LIFE FRONT)

Legislative and market barriers are limiting the uptake of climate-friendly alternative refrigerant gases. Developing a harmonised regulatory approach to the use of fluorinated gases in refrigeration, air conditioning and heat pump units is a priority of this project. It will also promote non-fluorinated alternatives, such as hydrocarbons, as a climate-smart and sustainable approach for this industry. This is expected to increase market uptake of these alternatives by up to 60% by 2023.

Project summary

Making glass facades solar powered (LIFE BIPV)

Integrating solar panels into the glass facades of buildings could improve their energy performance in line with EU targets, as well as becoming a significant new source of renewable energy. This demonstration project will generate clean energy through building integrated photovoltaic facades fitted on refurbished and new buildings in Belgium and Spain, the final stage before market launch of the technology. LIFE BIPV expects to reduce the buildings' carbon dioxide emissions by 34% on average.

Project summary

BULGARIA (BG) (6 projects – 16.9 million)

LIFE Nature & Biodiversity (5 projects – 14.1 million)

Protecting migrating birds from power lines (LIFEBIRDS on POWER LINES)

Large numbers of wild birds are killed or injured by overhead power lines. The aim of this project is to reduce deaths of protected birds along the Via Aristoteles, an important migration route in western Bulgaria. The project will identify the power lines that pose the most serious electrocution or collision hazards for birds within and around key Natura 2000 network sites, and implement measures to prevent mortalities and injuries.

Project summary

Helping Bulgarian forests to regenerate (LIFEFORHAB)

Protected forests in south-western Bulgaria are struggling to regenerate naturally. To tackle this

challenge, the project will collect seeds and store them to support the future conservation of species typical of seven habitat types across six Natura 2000 network sites. It will also develop infrastructure and build expert capacity, demonstrate best practices for habitat restoration, and increase support from stakeholders for sustainable forest management.

Project summary

Reducing threats to the red-breasted goose (LIFE FOR SAFE FLIGHT)

The red-breasted goose (*Branta ruficollis*) is one of the most threatened geese in the world, facing major challenges both within the EU and along its global migration flyway. The project will improve knowledge of the threats to the species (e.g. by satellite-tagging individuals), introduce measures to reduce deaths caused by hunting and disturbance along the migratory route, develop national action plans, and manage key sites in ways that support goose conservation. It will play a key role in implementing the International Species Action Plan for the red-breasted goose.

Project summary

Conserving protected forests and grasslands (LIFE IAS Free Habitats)

Three types of the rarest and most vulnerable natural forest and grassland habitats in Bulgaria are 'endemic forests with *Juniperus*', '*Tilio-Acerion* forests of slopes, screes and ravines', and lowland hay meadows. A range of measures will be implemented by the project to improve their conservation condition. These include removing competitive and invasive species, sowing seeds and planting seedlings of characteristic forest species, and improving institutional capacity for addressing conservation issues related to invasive alien species.

Project summary

Strengthening Egyptian vulture populations in the Balkans (Egyptian Vulture New LIFE)

The Egyptian vulture (Neophron percnopterus) population is threatened by direct persecution, poisoning, electrocution on energy infrastructure and lack of food in its easternmost range in the EU. This project aims to reinforce the population by carrying out measures in both its Mediterranean breeding grounds and along its migratory flyway, with the active involvement of 12 countries in Africa and the Middle East. The project will also reinforce the Balkan breeding population through a targeted restocking programme, and raise awareness and support for Egyptian vulture conservation all along its flyway. These actions are considered vital for securing the survival of the species at the global level.

Project summary

LIFE Climate Change Mitigation (1 project – 2.8 million)

Reducing emissions from furnaces (LIFE CleanOx)

For every tonne of tableware glass produced, 600 kg of carbon dioxide is emitted. A new heat-exchanger system to capture and recycle waste heat from oxy-fuel furnaces could cut process CO2 emissions by 30% and nitrous oxide emissions by 90%, as well enhancing thermal efficiency and significantly reducing operating costs. The technology being demonstrated by this LIFE project is applicable to any industrial furnace operating above 700°C, meaning it could be widely used in the cement, steel and porcelain sectors, as well as the glass industry.

Project summary

CYPRUS (CY) (3 projects – 6.3 million)

LIFE Nature & Biodiversity (1 project – 1.7 million)

Establishing an early warning against invasive lionfish (RELIONMED-LIFE)

Lionfish (*Pterois*) are poisonous sub-tropical fish native to the Indian and Pacific Oceans. Two lionfish species are being observed more and more in the Mediterranean, where they have no natural predators and can damage marine ecosystems and local fishing economies. By setting up an early warning and rapid response system off the coast of Cyprus, RELIONMED-LIFE will prevent a lionfish invasion of the Mediterranean from the Red Sea. This focus on prevention is in line with the proposals for tackling invasive alien species set out in the EU's Invasive Alien Species Regulation.

Project summary

LIFE Environmental Governance & Information (1 project – 1.3 million)

Increasing awareness of a biodiversity hotspot (LIFE TROODOS)

Troodos national forest park is one of the most visited Natura 2000 sites in Cyprus, and a hotspot for biodiversity. Targeting local people and tourists, the project aims to increase awareness of the

importance of the national forest park's natural values and the ecosystem services it provides. Through various publicity actions, including an advertising campaign, cartoons that will be shown in schools and a mobile exhibition, the project hopes to reach the majority of Cypriots and a quarter of the more than one million tourists that visit the island every year.

Project summary

LIFE Climate Change Adaptation (1 project – 3.3 million)

Warning vulnerable populations about desert dust storms (LIFE-MEDEA)

Desert dust storms pose a major health risk to people living in Mediterranean countries. The prevalence and intensity of such storms is increasing because of climate change. LIFE-MEDEA will pioneer the development of an adaptation strategy for desert dust storms. This will focus on reducing exposure through improved forecasting and systems for giving an early warning to vulnerable populations, in particular children with asthma and adults with atrial fibrillation. Measures will be developed and tested in Cyprus, Greece and Israel and will be applicable to other affected regions of the Eastern Mediterranean.

Project summary

CZECH REPUBLIC (CZ) (4 projects – 14.8 million)

LIFE Nature & Biodiversity (3 projects – 13.7 million)

Boosting management of Czech and Slovak Natura 2000 sites (CZ-SK SOUTH LIFE)

Protectedgrassland, forest and raised bog habitats and associated species such as the hermit beetle are in decline in South Bohemia (Czech Republic) and southern Slovakia. This is linked to the growth of intensive farming and forestry and the abandonment of traditional meadow management. This large-scale LIFE project is designed to have a positive impact on the target habitats and species in a total of 55 Natura 2000 network sites across the two countries. This will be achieved through actions to reverse drainage of bog habitats, restore mowing and grazing regimes on grasslands, and tree-planting and invasive species removal in forests.

Project summary

Protecting species-rich grasslands and forests (LIFE České středohoří)

The natural volcanic rock of the Central Bohemian Highlands has enabled the development of species-rich grasslands and forests. These 'thermophilic' (heat-loving) habitats and species depend upon traditional animal husbandry and land management practices that are supported by EU payments to farmers for conservation actions. However, the target habitat continues to be lost because of the high cost of eliminating self-seeding invasive plant species, such as the black locust (*Robinia pseudoacacia*). This project will address that issue and restore and stabilise grassland and forest habitats across a 277 hectare area, leading to an increase in biodiversity. It will also give eco-tourism a boost through the development of an audio guide for visitors.

Project summary

Restoring insect-friendly open canopy forests (LIFE for insects)

The sunlit areas found within the open-canopy middle forests of central Europe are a haven for insects, including protected species such as the stag beetle (*Lucanus cervus)* and clouded Apollo butterfly (*Parnassius mnemosyne*). The decline of forest grazing and traditional coppicing of woodlands and the spread of self-seeding trees is a threat to the existence of these forests in the area of the western Carpathians along the Czech/Slovak border. To improve the condition of the habitat and connect populations of protected insects, the project will remove excess vegetation and invasive trees and shrubs. It will also reintroduce coppicing, that is cutting back trees to ground level to stimulate growth, and extensive grazing.

Project summary

LIFE Environmental Governance & Information (1 project – 1.1 million)

Improving access to environmental justice (LIFE-A2J-EARL)

'Citizen enforcement' can close the growing gap between EU environmental legislation and its implementation. This depends on knowledge of and access to justice. This project will produce handbooks and national toolkits on access to justice, EU procedural rules and case law. These will be distributed to judges, public interest lawyers, public administrations and other justice adminstrators. The goal is to increase awareness of existing rules and case-law on access to justice in environmental matters. An online platform will allow citizens to 'ask a lawyer' about specific cases.

Project summary

ESTONIA (EE) (2 projects – 1.6 million)

LIFE Nature & Biodiversity (1 project – 1.0 million)

Securing roosting sites of the pond bat (EstBatLIFE)

The pond bat (*Myotis dasycneme*) is a rare and threatened species in Europe, listed in the EU Habitats Directive. The loss of many of its safe winter roosts has been key to its decline. This project will work to protect and improve underground hibernation sites for the species in Estonia. It will secure the most important of these against uncontrolled visits, reduce visitor numbers during the hibernation period in the most vulnerable habitats, stop roost degradation, involve local volunteers in cleaning caves, and make policy recommendations for management plans for the pond bat and its protected areas.

Project summary

LIFE Environmental Governance & Information (1 project – 0.7 million)

Demonstrating the flexibility of the Natura 2000 network (NaturallyEst-LIFE)

The Natura 2000 network is the centrepiece of EU biodiversity policy. To avoid conflicts over the management of Natura 2000 sites in Estonia, this project will enhance communication between local communities, landowners and nature conservation stakeholders. This is also expected to reduce illegal activities in protected areas. Solutions to conflicts successfully applied elsewhere will be used to show that the network is a flexible and efficient tool for nature conservation. Improving the overall image of the Natura 2000 network will also help to promote the implementation of the EU Habitats and Birds directives.

Project summary

FINLAND (FI) (2 projects – 9.8 million)

LIFE Nature & Biodiversity (1 project – 8.9 million)

Improving the condition of Finnish peatlands (Hydrology LIFE)

More than 60% of Finland's original peatland area has disappeared in recent decades, mostly drained for forestry. This extensive wetland conservation project aims to improve the quality of 12 wetland habitats, protected by the EU Habitats Directive, by restoring peatlands and headwater systems in 103 Natura 2000 network sites. The water level management actions, which include filling ditches, restoring streams, and raising water levels, will enhance the ecosystem services provided by peatlands, including improved water quality and reduced downstream water fluctuations to reduce flooding risk. Wetland habitats for birds will also be improved.

Project summary

LIFE Climate Governance & Information (1 project – 0.9 million)

An online platform for energy efficient buildings (LIFE EconomisE)

Energy consumption in Finnish buildings could be cut by 50% by 2050 if existing structures are made more energy efficient and new buildings adhere to low carbon standards. This project is establishing a collaborative online platform for municipalities, developers and institutional investors to accelerate this process. The new platform, along with 30 investable multi-stakeholder projects and 15 to 20 new business concepts, will encourage a shift towards a low-carbon, sustainable buildings sector in which energy efficiency, life-cycle planning and climate resilience are integral. The goal is for three-quarters of institutional investors to have aligned their property portfolios with climate change targets.

Project summary

FRANCE (FR) (6 projects – 22.2 million)

LIFE Nature & Biodiversity (2 projects – 7.8 million)

Managing a national park in a tourism hotspot (LIFE HABITATS CALANQUES)

The Calanques national park in Provence is a Natura 2000 network site noted for its coastal habitats. But their proximity to coastal resorts is putting protected habitats and species under pressure. Crucially, this project will not only carry out restoration actions, it will produce best practice guidelines for integrated coastal management. These will focus on how to protect outstanding and fragile natural heritage while allowing a leisure and tourism-based economy to flourish.

Project summary

Giving the European mink a fighting chance in France (LIFE MAMMAQ)

The European mink (*Mustela lutreola*) is among the three most endangered mammals in France and the EU. One of its remaining strongholds in France is the Charente river basin, the location of this project. Actions will focus on limiting the causes of mink mortality, increasing the area of favourable habitat, improving ecological corridors and securing land tenure. The threat from the invasive American mink (*Neovison vison*) will also be addressed by disrupting its attempts to settle in the project area.

Project summary

LIFE Environment & Resource Efficiency (1 project – 2.3 million)

New road surfaces to reduce noise and urban heat (LIFE C-LOW-N ASPHALT)

Some 37 million Europeans are exposed to transport noise at levels dangerous for their health. Most of those people live in cities, where the health impacts of heatwaves are also more pronounced. Changes to road surfaces could lessen both environmental problems. The city of Paris is leading a LIFE project to devise durable asphalt surfaces with phonic and thermal properties that will reduce noise pollution and mitigate the urban heat island effect. The measurable impact at three pilot sites is expected to be a 2 decibel reduction in noise experienced by neighbouring residents and a 0.5°C to 1.5°C reduction in the urban heat island effect due to lighter road surfaces and increased water retention.

Project summary

LIFE Climate Change Mitigation (1 project – 7.4 million)

Making silicon production more heat efficient (LIFE WHIN)

Silicon manufacturing is an energy-intensive process that produces a lot of greenhouse gas emissions. This project will install a pioneering full-scale waste heat recovery system in a silicon plant in France. This system is expected to recover at least 47% of the waste heat generated during the production process and transform it into carbon-free electricity using an organic rankine cycle that replaces traditional refrigerants with a climate-friendly alternative. The system will reduce by 10% electricity costs for the plant's furnace and eliminate more than 50,000 tonnes per year of carbon dioxide emissions (26% reduction). The project will identify a further ten industrial sites where its heat recovery technology could be used and draft detailed plans for installation.

Project summary

LIFE Climate Governance & Information (2 projects – 4.7 million)

Helping assess investments against climate goals (LIFE PACTA)

By applying the Paris Agreement Capital Transition Assessment (PACTA) model, this project will give financial regulators and policy-makers the ability to assess EU insurance companies and pension fund assets against global climate goals. This will help them better assess the risks of investments under a range of different decarbonisation scenarios. At least 200 EU financial institutions are expected to adopt the PACTA model within three years of the project's completion. The project will also contribute to the broader goal of standardising climate-related accounting.

Project summary

Integrating climate resilient infrastructure into local planning (NATURE 4 CITY LIFE)

Natural and semi-natural landscape elements in towns and cities can increase resilience to climate change. These can range from a simple row of trees or a pond to complex modern structures such as green roofs and rainwater storage systems. NATURE 4 CITY LIFE will use a participatory approach to integrate such 'green and blue infrastructure' into local planning processes in south-east France. This will involve establishing sites incorporating multifunctional landscape elements in the cities of Marseille, Nice and Toulon. These demonstration sites will have an equal focus on socio-economic benefits. The project will also develop (transferable) integrated climate governance tools for measuring air quality, humidity and the 'heat island effect' in which heat is retained in urban areas.

Project summary

GERMANY (DE) (6 projects – 23.1 million)

LIFE Nature & Biodiversity (1 project – 4.1 million)

Implementing best practices for meadow birds (LIFE Limicodra)

Populations of meadow bird species have been significantly declining in Central Europe for several decades. There are two main reasons: the degradation of breeding habitats, and predation. To improve

conditions for meadow birds in Mecklenburg-Vorpommern, LIFE Limicodra will implement a number of actions, such as mowing, cutting of overgrowth vegetation and installing fences to keep out foxes. These will supplement and improve EU rural agri-environmental schemes that have not been enough to achieve a good status for meadow birds.

Project summary

LIFE Environment & Resource Efficiency (1 project – 0.9 million)

Smart valves to halve water loss from leaks (LIFE SmartWater)

Leaky pipes account for millions of litres of lost water from mains supplies every year. In Gouda, the Netherlands, a new system of smart valves will be installed with the goal of achieving a 50% reduction in physical water loss. Wireless-controlled valve actuators will be retrofitted to existing infrastructure and controlled by remote sensors. This smart system is designed to be cost effective to implement and it will save energy as well as water.

Project summary

LIFE Environmental Governance & Information (3 projects – 16.0 million)

A better appreciation of Natura 2000 in Bavaria (LIFE living Natura 2000)

Understanding, acceptance and appreciation of the Natura 2000 network of protected areas is crucial to the protection of Europe's natural heritage and counteracting biodiversity loss. As elsewhere in the EU, in Bavaria, there is a lack of public understanding of the aims and importance of the Natura 2000 network. This project sets out to improve the image of the network through an extensive communication and information campaign aimed at changing the perception and behaviour of stakeholders. The project's medium term impact will be to promote cooperative implementation of the Natura 2000 network in at least half the sites in Bavaria. It will thereby contribute to achieving the goals of the EU Habitats and Birds directives.

Project summary

Improving cross-border cooperation on large carnivores (LIFE EUROLARGECARNIVORES)

Europe's large carnivores (brown bears, wolves and lynx) don't know the meaning of borders: 29 of the 33 populations of these species in the EU are transboundary. Yet there is limited cooperation between Member States on managing large carnivore populations and ensuring their conservation. This project aims to heighten awareness among relevant countries of the ecological role of large carnivores, their socio-economic impacts and the potential benefits of their presence. The project will also encourage regional, national and European-wide exchanges on human and large carnivores coexistence best practices relating to, for example, livestock protection measures or sustainable tourism.

Project summary

Increasing awareness of chemicals of concern (LIFE AskReach)

Greater consumer awareness about substances of very high concern is crucial to the successful implementation of REACH, the EU chemicals Regulation. Chemical suppliers also need to be more aware of their responsibilities. This project will increase incentives for manufacturers, importers, users and retailers to replace hazardous substances with less harmful alternatives. Importantly, it will develop a Central European IT system allowing both consumers and producers to communicate on chemical issues. This should ultimately lead to a substantial reduction in the use of substances of very high concern.

Project summary

LIFE Climate Change Mitigation (1 project – 2.1 million)

Reusing waste heat in glass container manufacturing (LIFE GreenPower)

Europe's energy-intensive industries waste heat with a usable energy potential of over 2800 megawatt, equivalent to a large power station. LIFE GreenPower will test a new technology for converting low-grade waste heat from a glass container factory into mechanical energy. It is expected to show that fluorinated greenhouse gases in waste heat recovery can be eliminated and energy savings for compressed air production of up to 30% achieved. A further three installations of the technology are expected during the project, and five potential European customers will be identified.

Project summary

GREECE (GR) (6 projects – 12.2 million)

LIFE Nature & Biodiversity (2 projects – 3.6 million)

Demonstrating the biodiversity benefits of high nature value farming (LIFE IGIC)

Improving the coherence of habitats is a key way of maintaining the value of the Natura 2000 network. This project aims to develop a network of green areas, reconnecting existing natural areas, in order to demonstrate its beneficial impact on biodiversity. It will focus on a representative degraded ecosystem surrounded by protected areas and carry out measures to improve habitats as well as to enhance the conservation status of 47 targeted flora and fauna species. The project will also promote the development of green infrastructure outside protected areas through 'high nature value' farming, thereby helping implement national and EU biodiversity goals.

Project summary

Boosting biodiversity in and around a Mediterranean island (LIFE Andros Park)

From high mountains grasslands and rivers to its marine area, Andros, the northernmost island of the Cyclades, is home to a rich and varied biodiversity – but much of its flora and fauna is threatened, especially the Mediterranean monk seal (Monachus monachus), one of the world's most endangered marine mammals. This project will address these threats by adopting a holistic approach to the protection of marine life, seabirds and alluvial forest habitats. For example, the project will help reduce seal and seabird mortality by tackling plastic debris and 'ghost fishing', when fishing fear is lost at sea and continues to affect marine life. It will also create a seed bank for native plant species and grow specimens for replanting, while establishing a brand trademark to promote value-added fisheries products and fishing tourism.

Project summary

LIFE Environment & Resource Efficiency (2 projects – 4.0 million)

An energy efficient solution for old wastewater treatment plants (LIFE B2E4sustainable-WWTP)

Wastewater treatment plants built more than 20 years ago may struggle to deal with higher loading rates, especially in areas with a large seasonal increase in population (e.g. tourist resorts). To improve the performance of overloaded extended aeration wastewater treatment plants, this project proposes a novel process for removing solids prior to aeration. The microscreening system for biosolids removal will be installed at a wastewater treatment plant in Rethymno, Crete. It will be integrated with a biosolids drying and gasification system to enable combustion for energy production. The goal is to produce enough energy to meet all the needs of the treatment plant, making it totally self-sufficient. By reducing the biological load in treated wastewater, the project will also protect the aquatic environment.

Project summary

Exploiting the commercial potential of petroleum sludge (LIFE DIANA)

Europe's crude oil refineries produce around one million tonnes of petroleum sludge each year. Treatment and disposal of this waste material is complex and expensive. This project will demonstrate the smart exploitation of petroleum sludge by treating it with modified minerals at an industrial-scale plant at Corinth Refineries in Greece. In the process it will transform hazardous waste into an added-value commercial product that can be used to make an 'engineered soil' for construction of landfills and remediation of abandoned quarries. The demonstration plant will treat 3500 tonnes of petroleum sludge per year.

Project summary

LIFE Climate Change Adaptation (1 project – 2.7 million)

Restoring dry-stone terrace ecosystems to the Aegean (LIFE TERRACESCAPE)

For centuries, farmers on Aegean islands cultivated dry-stone terraces. The recent abandonment of this practice makes those island ecosystems more vulnerable and susceptible to climate change impacts. LIFE TERRACESCAPE will work with local farmers on Andros to bring back the terraces, which also help to filter rainwater, reduce soil erosion and support biodiversity. This will involve setting up a dry-stone wall 'school', re-establishing cultivation on over 150 hectares of abandoned terraces and bringing together farmers, food and tourism businesses to create a certification label for climate-smart local produce. A strategic adaptation plan for agriculture will enable outcomes to be transferred to rural communities on other Aegean islands.

Project summary

LIFE Climate Change Mitigation (1 project – 1.9 million)

Getting biofuel from aquatic plants (LIFE Biomass C+)

Could aquatic plants be a major new source of sustainable biofuel? Using an innovative green

technology, this project will produce zero-input biomass using macrophytes (floating and submerged plants) found in irrigation channels, ponds, lakes and rivers. The biomass can be converted into bioethanol and eventually biofuel, thereby helping to contribute to climate change mitigation strategies.

Project summary

HUNGARY (HU) (2 projects – 5.2 million)

LIFE Nature & Biodiversity (1 project – 2.7 million)

Conserving Hungary's chalk forest steppes (OAKEYLIFE)

Forest steppes are home to many different types of habitats depending on their soil and climate. The project aims to improve the conservation status and enlarge the protected calcareous sand forest steppe habitat in Hungary. It will eliminate obstacles to restoring sites and increase the population sizes of plants and invertebrates. In addition, it will restore key ecosystem services provided by this habitat type.

Project summary

LIFE Climate Change Adaptation (1 project – 2.5 million)

Making Hungary's towns and cities more climate resilient (LIFE-MICACC)

Hungary is forecast to suffer a greater than average impact from climate change, including water scarcity and more extreme and unpredictable floods. LIFE MICACC will build capacity among Hungary's 3000+ municipalities through demonstration actions, smart online tools, training and support networks. This will enable them to develop policies and action plans that map risks associated with climate change and enhance their resilience. In particular, the project will focus on promoting ecosystem-based natural water retention measures to manage and mitigate flooding caused by climate change.

Project summary

ITALY (IT) (31 projects – 83.0 million)

LIFE Nature & Biodiversity (5 projects – 19.3 million)

Boosting protected oak forests in Italy and Hungary (LIFE 4 Oak Forests)

Centuries of commercial logging, unsuitable forest management and overpopulation of wild game have resulted in an 'unfavourable' conservation status for many types of valuable oak forests in the EU. This project sets out to improve the conservation status of five protected oak forest habitat types found in Italy and Hungary. Actions will include nature conservation management of more than 2000 hectares of oak forests, fencing other areas to stop damage caused by game and eradication of invasive tree species.

Project summary

Restoring coastal dunes of the North Adriatic (LIFE REDUNE)

Coastal dunes have long been subject to unsustainable exploitation and mismanagement, generally due to lack of awareness about problems such as habitat loss, spread of invasive alien species and degradation due to tourism and recreational activities. LIFE REDUNE's goal is to restore and maintain the dune habitats of four Natura 2000 sites along the North Adriatic coastline, along with their populations of *Stipa veneta,* an endangered plant endemic to the dunes of north-east Italy.

Project summary

Restocking threatened Egyptian vulture populations in Italy and the Canaries

(LIFE EGYPTIAN VULTURE)

Close to extinction in Italy, only eight breeding pairs of the Egyptian vulture (*Neophron percnopterus*) remained in 2015. These were found in the southern regions of Basilicata, Calabria and Sicily. The vulture is also at risk in the Canary Islands, Spain, where it faces the threat of poisoning, poaching and collisions with power lines. This project aims to improve the conservation status of both populations by defining and spreading best practices for captive-breeding and restocking programmes.

Project summary

Restoring coastal lagoons in Venice (LIFE LAGOON REFRESH)

Coastal lagoons are a priority for conservation under the EU Habitats Directive. Many have have

receded significantly in recent decades as a result of human activities. This project will work to restore the coastal lagoons of Venice's northern lagoon. In particular, it aims to conserve them in order to exploit the ecosystem services they provide, such as supporting numerous biological communities and stabilising tidal flats. The project targets improvements in both lagoon bottom (benthic) and fish communities, especially a rare fish species, the Canestrini's goby (*Pomatoschistus canestrinii)*.

Project summary

Restoring ecologically important brown algae (ROC-POP-LIFE)

Brown algae (*Cystoseira*) plays a key role in marine conservation, supporting biodiversity and food cycles and sequestrating a large amount of carbon dioxide. However, the impacts of tourism and other human activities are causing this highly vulnerable reef habitat type to decline in the Mediterranean. This project aims to trigger brown algae restoration in two Natura 2000 network marine sites - Cinque Terre and Miramare. Restoration work will involve experimental transplanting techniques, including taking young cultured specimens from areas of more robust populations, saving time, money and lowering the ecological impact.

Project summary

LIFE Environment & Resource Efficiency (18 projects – 45.5 million)

Reducing the impact of urban freight transport (LIFE ASPIRE)

Urban freight has a disproportionately large impact on air quality and congestion, accounting for 25% of total transport air pollution and over 20% of congestion costs. Such issues are compounded in cities with a medieval centre, such as Lucca in Tuscany. The city has already implemented a 'limited transport zone' for freight through an earlier LIFE project. This project will introduce a 'credit-based' system for transport operators that applies flexible road pricing and rewards cleaner vehicles with high credit points. This is one of an integrated set of measures for improving energy efficiency and urban air quality. Others include load/unload parking lots and cargo-bike sharing. The project expects to reduce the number of last-mile deliveries in the historic centre and cut emissions of CO2, NOX and particulate matter by over 10%. It will assess the potential for replicating the access control policy in Stockholm, Sweden, and Zadar, Croatia.

Project summary

New software to implement REACH chemicals legislation (LIFE VERMEER)

Software modelling can help assess the risk to health and the environment of chemicals, and to identify potential substitutes for harmful substances. LIFE VERMEER is developing two new tools that will have broad application and will help implement the EU REACH Regulation. Both tools will be validated within six case studies (food contact materials, biocides, petroleum and oil fraction, greener solvents, dispersants, and cosmetics), so that they can become part of a platform called VEGA (Virtual models for property Evaluation of chemicals within a Global Architecture).

Project summary

Making fertiliser and additives from organic waste (LIFECAB)

The EU generates an estimated 76.5 to 102 million tonnes of municipal bio-waste each year. This is mostly food and pruning waste from gardens and green public areas. LIFECAB will demonstrate a new bio-waste treatment cycle, involving biochemical and chemical processes within a hydrolysis prototype facility with strong technology transfer potential. Composted municipal bio-wastes will be hydrolysed to yield soluble bio-based substances, for use as products (e.g. fertiliser) and as additives that improve the anaerobic fermentation process, thereby increasing biogas productivity and quality.

Project summary

A tool to help companies comply with environmental legislation (LIFE MATHER)

Potentially hazardous chemicals used in the home appliances sector such as lead should be regulated, monitored and, when possible, replaced with safer alternatives. This project will develop a new chemical monitoring data tool for use by companies linking each chemical substance they use to both the relevant regulatory framework and its known harmful impacts. This will be demonstrated on around 15 to 20 products. The tool will raise awareness of the health and environmental impacts of materials and chemicals in product components, reduce the costs related to updating in-house databases and inventories, and result in quicker and more effective compliance with EU environmental and chemicals directives and regulations.

Project summary

Improving recycling of end-of-life vehicles (LIFE De-BAY)

When a vehicle reaches the end of its useful life, what's next? According to EU legislation, at least 85%

(by weight) should be recycled. This project is seeking to lower the environmental impact of so-called end-of-life vehicles by developing more efficient recovery systems and techniques for small and medium-sized dismantlers. It will validate and demonstrate its new technology at two pilot vehicle dismantling sites. This will enable the recovery of larger amounts of materials and components, and up to 99% of all vehicle fluids by weight. It will be faster, safer and more efficient than current commercial systems.

Project summary

Making Grana Padano processing greener (LIFE TTGG)

Nearly a quarter of all milk produced in Italy is used to make Grana Padano. With 183,000 tonnes produced in 2015, it is one of the country's best-known and most widely consumed cheeses and has EU Protected Designation of Origin status. But the environmental impact of the manufacturing process could be lowered. This project will develop and test an environmental decision-support system to improve the efficiency of the supply chain, measuring performance against the Product Environmental Footprint metric. French dairy organisation, CNIEL, a project partner, will subsequently transfer the decision-support system to other EU Protected Designation of Origin cheeses.

Project summary

Saving materials and energy in steel component manufacturing (LIFE 4GreenSteel)

The manufacture of high-density steel components for the automotive industry has a considerable negative impact on the environment. This could be alleviated with more efficient use of raw materials and energy. LIFE 4GreenSteel will show that it is feasible to replace the traditional energy-intensive machining process with innovative High Density Powder Metallurgy technology. This should result in considerable energy and material savings, and reduce by more than 70% the lubricant premixed with metal powder, increasing energy efficiency and solving related emission problems.

Project summary

Increasing the sustainability of ceramic tile production (LIFE: Force of the Future)

Construction accounts for about 40% of the EU's total energy consumption and contributes almost 36% of its greenhouse gas emissions. To alleviate these significant environmental impacts, there has been a growing move towards more sustainable processes. This project will demonstrate dynamic monitoring of environmental, economic and social impacts at a ceramics company and will use these to inform a 'new production systems' concept. An integrated management tool will be used to identify the sustainable properties of materials and processes. This will enable the project to develop prototypes of more sustainable ceramic tiles, which will be produced on a small scale.

Project summary

Testing integrated mobility services in Tuscany (LIFE_SC)

Would you need to own a car if you could access integrated mobility services? This project integrates the benefits of public and private transport by developing a sustainable mobility programme for Tuscany's Argentario Coast. Inhabitants and tourists will be able access private or public transport services, depending on their needs and destination. Users will be able to travel on all services, including ferries, using a single ticketing system.

Project summary

Implementing a circular economy approach to aquaculture (REMEDIA Life)

The World Bank forecasts that aquaculture production will triple by 2030. Fish farm waste is often discharged into the sea without treatment. REMEDIA Life will mitigate associated environmental impacts by replacing commonly-used mussels and macroalgae with stress-tolerant bio-remediators, such as polychaetes and sponges. The 'integrated multi trophic aquaculture' system should significantly improve a range of indicators of seawater quality around a pilot mariculture farm. It will also enable production of edible and inedible biomass that could have commercial (biotechnological) applications. This sustainable aquaculture project is in line with the European Blue Growth Strategy.

Project summary

Tackling nitrogen pollution from digital textile printing (LIFE DeNTreat)

Digital textile printing has been gaining popularity among textile manufacturers. However, it is considered responsible for more than a 200% increase of nitrogen in wastewater, resulting in higher treatment costs. One solution could be to use decentralised wastewater pre-treatment modules, based on the Anammox (ANaerobic AMMonium Oxidatation) microbial process, as this project will demonstrate. These are capable of sustainably reducing nitrogen pollutants linked to textile industry discharges, hence decreasing the nitrogen content of urban wastewater.

Project summary

Reducing the impact of tannery effluents (LIFE GOAST)

Tannery effluents, if not properly treated, cause significant damage to soil and water bodies. LIFE GOAST will demonstrate a new tanning technology on a semi-industrial scale in Arzignano, Veneto. The technology is expected to have fewer environmental impacts than the standard chrome tanning process, while producing comparable or better quality leather. In particular, the project will produce chrome-free, high-quality leather articles, and improve the quality of tannery effluents by eliminating the use of chromium salts and other harmful substances. The process is also expected to reduce water consumption (by about 20%) and enable the recycling/reuse of 10% of tanning agents.

Project summary

Turning ordinary cars into hybrid vehicles (LIFE SAVE)

The EU aims to achieve a 95 g CO2/km cap in emissions from transport by 2020 with further restrictions to follow. To this end, this project is further developing a prototype (called HySolarKit) for converting internal combustion engine cars into hybrid electric vehicles, so that the technology is market-ready. Project actions will include improving the integration of the system into cars through upgraded power electronics, and demonstrating reductions in fuel consumption and greenhouse gas emissions in retrofitted vehicles. It will also optimise production costs to obtain a favourable payback time for consumers and define commercial and licensing agreements.

Project summary

Cutting the carbon footprint of industrial wastewater treatment (LIFE LESSWATT)

The carbon footprint of wastewater treatment plants can be significantly reduced by optimising treatment steps and lowering energy requirements. This project is targeting improvements in the energy consumption of industrial treatment plants and their direct greenhouse gas emissions. It will develop and implement a new tool for assessing the contribution that the aerated compartments of a treatment plant make to its overall carbon footprint. The tool will be demonstrated in the wastewater treatment units of six tanneries, located in Italy and the Netherlands.

Project summary

Reducing health costs of persistent contaminants in the water cycle (LIFE PHOENIX)

Persistent mobile organic contaminants are pollutants found in the water cycle that are of growing concern to health professionals, policy-makers and citizens. They degrade very slowly and can cause serious health effects. The project will introduce a new system of governance for managing the risks these contaminants pose. This inter-institutional system will be supported by innovative forecasting tools based on ongoing monitoring. LIFE PHOENIX will develop early warning tools and mitigation measures that are expected to reduce public expenditure on dealing with the health impacts of damage caused by persisent mobile organic contaminants.

Project summary

Generating energy from waste food (i-REXFO LIFE)

What if instead of going to waste, out of date food could be used to generate energy? i-REXFO LIFE will demonstrate the feasibility, sustainability and replicability of an innovative approach that could prevent costly landfilling, reduce greenhouse gas emissions, and create new uses for 'expired food'. The approach centres on development of a tool to assess the bioenergy potential of locally-available waste food in terms of business models, legislative frameworks and other factors. This will be used to demonstrate sustainable 'reduction of expired food' strategies in the Umbria region of Italy, with actions focused on promoting the use of near-to-expiration food, such as distribution to charities, and raising consumer awareness about food label information.

Project summary

New tools for real-time monitoring of radon in buildings (LIFE RESPIRE)

Radon is a short-lived radioactive gas from natural sources that poses a health risk in buildings. Local authorities need better tools for real-time monitoring of indoor radon in order to reduce those risks and implement the EU Directive on human exposure to natural radiation. LIFE RESPIRE will demonstrate a cost-effective solution in four areas of Italy and Belgium, where it will be used to provide local authorities with real-time radon maps and to help implement remediation actions. Mapping of 'radon prone areas' will enable national action plans to be developed, as well as helping to raise public awareness about radon.

Project summary

Demonstrating a natural approach to plant disease in vineyards (LIFE GREEN GRAPES)

Plant diseases in vineyards are a major headache for wine producers. Control of those diseases is becoming more difficult as pathogens acquire resistance to the most used active ingredients in commercial fungicides. Stimulation of plants' natural metabolic resistance is a promising way of overcoming this problem. LIFE GREEN GRAPES seeks to improve the anti-parasitic response of vineyards through innovative natural products. It will demonstrate the effectiveness of predictive crop protection models, coupled with agronomic techniques and foliar interventions on vine plants, based on the use of products to increase plant resistance and biocontrol agents. This will also help reduce the amount of chemical fertilisers and pesticides used, as well as improving the harvest and product quality.

Project summary

LIFE Environmental Governance & Information (4 projects – 6.0 million)

Involving distributors and retailers in waste electronics collection (LIFE WEEE)

Recovery rates of waste electrical and electronic equipment could be improved with greater consumer awareness and involvement of equipment retailers and distributors in the collection process. LIFE WEEE will trial a new governance model that follows this approach in Tuscany, Italy, and Andalusia, Spain. This includes setting up new information exchanges and equipment disposal sites and simplifying adminstrative procedures for businesses involved in its collection and management. Making people aware of the importance of separate collection of electrical and electronic waste is essential both to eliminate behaviour that leads to severe environmental risks and for the full implementation of the EU Directive on waste electrical and electronic equipment.

Project summary

Cycling through the Italian Natura 2000 Network (LIFE Sic2Sic)

Many Natura 2000 network sites are seriously threatened by degradation, severe fragmentation of habitats, the introduction of invasive alien species and the overexploitation of resources and valuable species. LIFE Sic2Sic will promote awareness and active public participation in the protection of biodiversity. It seeks to increase people's awareness of the Natura 2000 network and to encourage Italians to adopt more environmentally sustainable behaviour, for instance by promoting bike lanes and sustainable tourism. Other aims are to foster and stimulate processes of active citizenship concerning environmental issues, and to promote the activation of 'territorial governance' collaborative models.

Project summary

Making festivals greener (LIFE GreenFEST)

Green public procurement has been identified as one of the main tools public administrations can use to drive the necessary changes to current consumption and production patterns. By promoting green public procurement among stakeholders, this project can make festivals and cutural events greener across Italy. The idea is that cultural events, funded, sponsored or organised by local authorities, would be subject to a number of minimum environmental criteria, in line with the EU's goal of moving towards a circular economy.

Project summary

Monitoring and restoring underwater meadows (LIFE SEPOSSO)

Protected underwater meadows of Neptune grass (*Posidonia oceanica*) are under threat along the Italian coast and especially near towns and cities. LIFE SEPOSSO will help address the loss and fragmentation of these important habitats by creating an electronic information system to measure and evaluate the efficiency and effectiveness of inspection and surveillance works. It will also transplant Neptune grass to restore missing sections of meadows and raise awareness of their importance among public authorities and the general public.

Project summary

LIFE Climate Change Adaptation (3 projects – 9.3 million)

Adapting to desertification is an opportunity for farmers (LIFE DESERT-ADAPT)

Climate change adaptation is not only a huge challenge, it is also an opportunity to open up new income sources for farmers. Desertification Adaptation Models tested by this project in vulnerable parts of Italy, Spain and Portugal will combine methods such as inter-planting, reforestation, water-saving technologies and soil protection to increase resilience. As well as improved biodiversity, there will be a net carbon removal of one tonne of carbon dioxide per hectare using the new models. Another expected outcome is eight viable new sources of income (organic products and ecosystem services) generating an extra 100 euros per hectare.

Project summary

Sustainably managing alpine pastureland (LIFE PASTORALP)

Better understanding the carbon sequestration potential of pastureland in the Alps, and devising more sustainable ways to manage it, could change the current ad hoc approach to pastureland preservation. LIFE PASTORALP will work with graziers to develop and test adaptation measures, build capacity and improve management strategies for climate change adaptation in two national parks (one in Italy, one in France). Defining environmental and socio-economic indicators for the status of pastureland and consolidating results into guidelines will enable other alpine regions to benefit from lessons learned.

Project summary

Reducing flood risk in Veneto (LIFE Veneto ADAPT)

A major flood in 2010 in north-east Italy highlighted the increased risk of catastrophic flooding provoked by climate change. This LIFE project will devise integrated approaches for flood management throughout the Veneto region. Mapping of risks, vulnerabilities and resilience will provide a baseline for comprehensive and sustainable adaptation measures. These action plans will be aligned with urban planning policies to mitigate the expected increase in major flood events in the coming decades. More than 1.7 million citizens will benefit from improved resilience to flooding.

Project summary

LIFE Climate Change Mitigation (1 project – 2.9 million)

Making climate-friendly refrigerants commercially viable (LIFE-IREPRO)

Refrigerant gases containing hydrocarbons have a much lower global warming potential than fluorinated gases currently used in industrial refrigeration and air conditioning units. Uptake of these alternatives is limited by technological barriers. By introducing a separation column and changing the blending process during distillation of hydrocarbon refrigerants, this project expects to reduce costs by 20%, making the climate-friendly gases more commercially viable. Showing that it is possible to cut greenhouse gas emissions, water consumption and energy usage will support the implementation of new standards and regulations on fluorinated gases.

Project summary

LATVIA (LV) (1 project – 4.4 million)

LIFE Nature & Biodiversity (1 project – 4.4 million)

Establishing long-term management of Latvia's protected grasslands (GrassLIFE)

Latvia'spriority grassland habitats are in urgent need of support. This project will restore and reconnect more than 1300 hectares of grasslands and establish long-term management through grazing. This will involve working with partner farms to identify grassland-related business products with high added value. The project will also submit proposals to the Latvian government of hotspots for further grassland restoration and ways to incorporate protection of these habitats into the country's Rural Development Programme for 2021-2027.

Project summary

LITHUANIA (LT) (1 project – 1.4 million)

LIFE Nature & Biodiversity (1 project – 1.4 million)

Creating favourable habitats for the hermit beetle (LIFE OSMODERMA)

The hermit beetle (*Osmoderma eremita*) is a 'near threatened' species in the EU, restricted to old-growth trees, notably the decaying trunks of old oaks, left *in situ* in forests. The project will improve conditions for the beetle in core project areas through measures such as management of its preferred habitats, creation of migratory corridors and eradication of competing invasive saproxylic (deadwood dependent) species. It will also identify the ecological network for the hermit beetle and other protected insect species and develop a cross-border (Lithuania-Latvia) plan for this network. Through its efforts, LIFE OSMODERMA expects to restore at least one viable hermit beetle population.

Project summary

THE NETHERLANDS (NL) (5 projects – 33.5 million)

LIFE Nature & Biodiversity (1 project – 7.0 million)

Restoring estuarine areas for migrating fish and wading birds (Fish migration & BirdLIFE)

Is there a better approach to the management of habitats favoured by migratory fish species and wading birds? This project in Friesland will attempt to find out by focusing on a gradual, ecological freshwater-saltwater transition between the Wadden Sea, IJsselmeer and the hinterland. Natural landscaping of the transition from the sea to the Ijsselmeer will provide an acclimatisation zone and habitat for Atlantic salmon, lampreys and other fish migrating between the Wadden Sea and the wider Rhine river basin. Restoration of the estuary will include the creation of breeding islands and high-tide resting areas for birds.

Project summary

LIFE Environment & Resource Efficiency (3 projects – 18.5 million)

Developing new products from sewage sludge (LIFE Waste2NeoAlginate)

Granular sludge produced during wastewater treatment contains a relatively high percentage of valuable components such as alginate-like exopolysaccharides. These are comparable to the alginates traditionally derived from seaweed and could replace many fossil fuel-based chemicals used to manufacture paper, textiles and concrete, as well as in agriculture. This project will set up a full-scale demonstration plant to produce around 1000 tonnes per year of NeoAlginate from granular sludge, developing new markets for bio-based products, in line with circular economy principles. The payback period for a full-scale plant is estimated to be three years only.

Project summary

Scaling up recycling of expanded polystyrene (LIFE-PSLOOP)

Expanded polystyrene foam is used extensively throughout Europe as an insulation material. However, only 7.5% of it is recycled; the rest is landfilled or incinerated. The objective of LIFE-PSLOOP is to recycle both expanded polystyrene construction waste and extruded polystyrene and to demonstrate an economically viable alternative to incineration. The project will construct an industrial-scale recycling plant that can process 3000 tonnes per year of polystyrene waste, reducing greenhouse gas emissions by 78% (12,000 tonnes annually).

Project summary

Recycling ammonia from dairy cattle barns (LIFE-CMCD)

Ammonia (NH3) is a precursor of particulate matter when released into the atmosphere. It causes acidification and eutrophication in soils and water. Dairy cattle farming is responsible for 44% of all ammonia emissions in the EU. Ammonia is formed when cow faeces mixes with urea. This project could reduce ammonia emissions from cattle barns by over 60% by separating faeces and urine immediately, using a robotic system called Lely RFX. The faeces will be separated into a fibrous fraction, for use as cattle bedding, and a liquid slurry fertiliser. The urine will be treated to produce other types of fertiliser that can reduce ammonia emissions on fields by more than 60% compared to non-processed manure. The new system will be tested in the Netherlands, Denmark, France and Germany.

Project summary

LIFE Climate Change Adaptation (1 project – 8.0 million)

Multiple benefits from multifunctional roofs (LIFE@Urban Roofs)

Multifunctional roofs have more benefits for the owners of buildings than green roofs, since they also enable water storage, energy production and social uses. The city of Rotterdam wants to stimulate the spread of these multi-purpose roofs by incentivising real estate developers and property owners. Through this LIFE project it will establish three demonstration sites on buildings with very different characteristics and demographics, including an experimental space for companies to test new technology. The project's new approach will be replicated in Vejle, Denmark.

Project summary

POLAND (PL) (3 projects – 7.2 million)

LIFE Nature & Biodiversity (1 project – 4.3 million)

Protecting waterbird habitats in the Upper Vistula (LIFE.VISTULA.PL)

The Upper Vistula River Valley is noted for its waterbird habitats, in particluar it is home to the common tern (*Sterna hirundo*) and the night heron (*Nycticorax nycticorax*). This LIFE project will restore conditions for both protected species in four Natura 2000 network sites of the Upper Vistula. Nesting birds will benefit from new gravel beaches and actions to stop shoreline erosion. Ponds will also be restored. The project will give new insights into night heron conservation that can be applied in other areas where artificial reservoirs are being used for leisure activities.

Project summary

LIFE Environmental Governance & Information (1 project – 0.5 million)

Supporting local action for nature in the Carpathians (LIFE Green-Go!Carpathians)

The Carpathian mountains are one of Europe's most important ecological corridors and a haven for biodiversity. The Polish part of the Carpathians includes nearly half a million hectares of protected areas. Rivers and grasslands within these areas are becoming increasingly degraded and fragmented. Restoration depends on the support and involvement of local communities. This LIFE project will establish networks of local residents and authorities to carry out actions to protect landscapes and biodiversity. These networks will show the benefits of nature conservation for local development and share good practices for participatory governance of Natura 2000 sites throughout the Carpathian region.

Project summary

LIFE Climate Governance & Information (1 project – 2.4 million)

Helping deliver EU climate and energy policy at national level (LIFE Climate CAKE PL)

Implementation of EU climate and energy policies depends upon effective action at national level. To give decision-makers in Poland the capacity to efficiently implement those policies, LIFE Climate CAKE PL will establish a centre for climate and energy analyses that will develop modelling tools for assessing the precise climate change impact of proposed agriculture, transport and energy policies. At least five Polish government ministries will test the modelling tool. The new centre will also act as an information hub to increase awareness of climate and energy policies among businesses and the general public.

Project summary

PORTUGAL (PT) (2 projects – 5.0 million)

LIFE Nature & Biodiversity (1 project – 1.7 million)

Conserving Portugal's relict habitats (LIFE RELICT)

Relict habitats (remnants of the last Ice Age more than 10 000 years ago) in Portugal are officially recognised as being in an inadequate condition and in decline. This project takes place in three Natura 2000 network sites where they can still be found. It will focus in particular on two unique habitat sub-types with relict shrubland species: Portugal laurel (*Prunus lusitanica*) and pontic rhododendron (*Rhododendron ponticum* ssp. *baeticum*). Conservation and management actions will include extending the habitat into favourable adjacent areas, implementing measures to reduce the risk of fires, and removal of invasive alien plant species. Reforestation is expected to improve the ecological function of the project area in the medium to long term, increasing carbon sequestration and soil organic matter.

Project summary

LIFE Environment & Resource Efficiency (1 project – 3.3 million)

Improving the condition of the Vouga river basin (LIFE AGUEDA)

Modifications to the structure or water flow of rivers affect their ability to retain sediments, make them more vulnerable to pollution, and have a negative impact on flora and fauna. LIFE AGUEDA will improve the condition of the Vouga river basin in the Centro region by renaturalising stretches of the river and restoring or recreating associated habitats. Actions will include building fish passes that mimic natural conditions, restocking the population of the protected European eel, and involving anglers in fish monitoring. The project will also set up mobile fish auctions to create market differentiation (and higher prices) for fish from the the Vouga.

Project summary

ROMANIA (RO) (1 project – 1.5 million)

LIFE Nature & Biodiversity (1 project – 1.5 million)

Reconnecting the River Gilort (Fish for LIFE)

The Gilort is a tributary of the River Jiu in southern Romania. Damming of the Gilort to generate hydropower and the construction of a coal-fired power station have upset the preferred habitat conditions for many rheophilic fish species (i.e. those that prefer fast-flowing water). Fish for LIFE will restore river connectivity and improve habitats for four target fish species. This will be achieved by restoring the Gilort's natural physical characteristics, re-establishing a link between two stretches of the river, stabilising river banks by planting native species, and by constructing two fish passages.

Project summary

SLOVENIA (SI) (7 projects – 22.9 million)

LIFE Nature & Biodiversity (3 projects – 12.9 million)

Creating a stepping stone for lynx in Slovenia (LIFE Lynx)

Urgent action is needed to protect the Dinaric-SE Alpine lynx (*Lynx lynx*) population from extinction. This project will create favourable areas and food sources to help link together lynx populations and thereby promote their survival. It will also form a new population nucleus further west of the current Dinaric population, through the release of individuals transplanted from a viable source population in the Carpathians. Cross-border conservation management will help reduce potential human-lynx conflicts.

Project summary

Saving a rare fish from extinction (LIFE for LASCA)

The South European nase (*Protochondrostoma genei*) is a very rare fish species that occurs in northern Italy and western Slovenia, where it is close to extinction with populations in rapid decline across its entire range. This project will release captive-bred fish to reinforce wild populations, establish a South European nase conservation management plan, and reduce numbers of an invasive fish species, the sneep (*Chondrostoma nasus*), which competes with it for resources.

Project summary

Measures to restore the functioning of intermittent lakes (LIFE STRŽEN)

Turloughs are a type of intermittent lake, a seasonal expanse of water that is dry for part of the year. They are a priority for conservation in the EU Habitats Directive. Lake Cerknica in Slovenia is a turlough whose natural water dynamics have been compromised by drainage to maximise agricultural use. To reverse these effects, this project will restore the former Stržen riverbed in two Natura 2000 network sites. Extending the watercourse by 1.5 km will increase saturation of soil with water and improve conditions for characteristic species of fish, invertebrates, birds and mammals. To reduce negative impacts of visitors on the restored riverbed, the project will establish 'quiet zones' in the breeding habitat of the Eurasian bittern (*Botaurus stellaris*).

Project summary

LIFE Environment & Resource Efficiency (1 project – 4.4 million)

Turning acid whey into an income stream for dairies (LIFE for Acid Whey)

Only 40% of whey, the liquid remaining after milk has been curdled and strained, is further processed in the EU. This despite the fact that it contains proteins with high market demand. Acid (sour) whey in particular is usually discharged into the sewage system and can end up depleting oxygen levels in water. This project will demonstrate a technology that can extract high-value proteins, such as lactoferrin, lactoperoxidase and immunoglobulins, from waste whey streams in an economically viable way. It will also produce methane from acid whey in a biogas co-digestion plant. These technologies should reduce the environmental burden of acid whey and give small and medium-sized dairies new sources of income.

Project summary

LIFE Environmental Governance & Information (2 projects – 3.8 million)

Boosting biodiversity awareness in Slovenia (LIFE NATURAVIVA)

Slovenia has a larger share of Natura 2000 sites than any other EU Member State, with 37% of its territory inside the network. In spite of this fact, biodiversity awareness remains low. This ambitious project promises to raise awareness on a grand scale (i.e. reaching 50% of the population), highlighting the importance of biodiversity and increasing support among Slovenians for action to halt biodiversity loss, and in support of nature, protected areas and the Natura 2000 network. A variety of innovative activities targeting different sectors are planned, including creating three biodiversity educational trails and connecting nature conservation with cultural and arts events.

Project summary

Raising awareness of environmental liability (ECOLEX LIFE)

A recent survey found that few Slovenians were familiar with the EU Environmental Liability Directive. To raise awareness among those most affected by this directive, ECOLEX LIFE will target communications at people who prepare environmental risk assessments, experts in environmental law,

and people working for companies and organisations whose activities have an environmental impact. Among other actions, the project will develop a toolkit to help stakeholders understand their environmental responsibility and act accordingly. By promoting behavioural change, the idea is that environmental incidents may be reduced.

Project summary

LIFE Climate Governance & Information (1 project – 1.7 million)

Encouraging local climate action to meet Paris targets (LIFE ClimatePath2050)

A new decision-support system will help authorities in Slovenia meet the targets for reducing greenhouse gas emissions set out in the Paris Agreement. The tool developed by this LIFE project will enable authorities to fully assess the impact of different greenhouse gas mitigation scenarios. It will also enhance monitoring and reporting with no extra administrative burden. Local 'climate action scoreboards' will be set up to motivate local communities to compare their progress with that of other communities. This will allow the government to propose more ambitious targets and actions in the future. The ultimate outcome: a robust national mid-century climate strategy.

Project summary

SPAIN (ES) (44 projects – 79.4 million)

LIFE Nature & Biodiversity (5 projects – 12.5 million)

Restoring habitats on a rare songbird's migration route (LIFE PALUDICOLA)

The aquatic warbler (*Acrocephalus paudicola*) is a specialist migratory bird species whose preferred habitats include large open reedlands, peatlands and fens with species of the genus *Cladium*. It is suffering a serious decline in western and central Europe due to the loss of its habitats, mainly caused by drainage of shallow wetlands, peatlands and flood plains for use as agricultural land or for peat extraction. The project will restore and improve some 380 hectares of preferred aquatic warbler habitat in Spain, which is on the species' main migration route between Europe and Africa.

Project summary

Habitat improvement for Bonelli's eagle (AQUALIA a-LIFE)

Between the 1970s and 1990s, Bonelli's eagle (*Hieraaetus fasciatus*) disappeared from many western Mediterranean areas. To increase its occurrence and reverse the current regressive population trend, this project will focus on restoring the habitats where it once lived. Among other actions, it will release birds in areas where a previous project (LIFE BONELLI) has achieved some success in reintroducing the species. AQUALIA a-LIFE will also address a range of threats to the eagle.

Project summary

Helping the Cantabrian brown bear expand its range (LIFE OSO COUREL)

In recent years there has been an increase in numbers of the Cantabrian brown bear (*Ursus arctos*). However, the population is still under threat. Serra do Courel in Galicia is an important potential expansion zone for the brown bear. This LIFE project will take steps to enable the species to become permanantly established there. Habitats will be connected and made more suitable for bears. Outreach work with the local community and interest groups (farmers, graziers, hunters) will seek to promote greater social acceptance of the presence of this large carnivore.

Project summary

Maintaining protected habitats on common land (LIFE IN COMMON LAND)

How do you manage protected habitats situated on land with common grazing rights? This project in the Sierra do Xistral Natura 2000 network site in Galicia, north-west Spain, hopes to provide some answers. To prevent conflict between nature conservation and economic activities, it will introduce integrated, results-based management of common land where Atlantic wet heaths, raised bogs and blanket bogs are found. Measures will include management of livestock density and the implementation of payment schemes for people exercising their grazing rights. The goal is to incorporate these schemes into the regional rural development plan to ensure results are sustained and replicated.

Project summary

Alternative conservation strategies for Mediterranean alder forests (LIFE ALNUS)

Mediterranean alder forests are in decline, but the causes are not fully understood. To address this, LIFE ALNUS will design and promote alternative conservation strategies to improve the condition of alder forests in Catalonia. These include creating hundreds of core areas of dispersed habitat from

which plants can expand outwards, increasing the area of alder forest, restoring connectivity and ecological functioning. These strategies will be tested in three pilot areas with a view to replicating the methods throughout the Mediterranean.

Project summary

LIFE Environment & Resource Efficiency (32 projects – 55.6 million)

Identifying the most polluting vehicles in real time (LIFE GySTRA)

Targeting a reduction in air pollution in towns and cities, the project will develop a tool that will remotely measure real-time vehicle emissions in order to identify high-emitting vehicles. The tool will be tested in real conditions on vehicles driving in Madrid and on a fleet of buses in the Austrian city of Graz. It will enable authorities to require polluting vehicles to be repaired or face a fine.

Project summary

Removing phosphorous with natural coagulants (LIFE NEWEST)

Phosphorous is widely used in agricultural fertilisers, detergents, household cleaning products and industrial processes. As a result, more phosphorus has been measured in lakes and rivers in recent years. This project will use new, natural-based coagulants in tertiary wastewater treatment processes. These are designed to replace potentially toxic synthetic coagulants and improve the efficiency and effectiveness of phosphorous removal. Sludge from the treatment process will be used in biomethanation processes to produce biogas as well as agricultural applications.

Project summary

Reusing spent yeast in brewing and pharmaceuticals (LIFE YEAST)

Brewers' spent yeast is a brewing industry by-product. It contains a high level of nutrients. However, it is highly susceptible to rapid contamination and spoilage caused by microorganisms. This has hampered the large-scale deployment of some technologies for its reuse. This project will process spent yeast in order to generate valuable materials for a range of industrial applications. It will test, optimise and scale-up the processing of the yeast, aiming to demonstrate the commercial use of yeast constituents in the brewing and pharmaceutical industries. It will also explore options in the animal feed, wine, food and cosmetics industries. At the end of the project, a full engineering package will be developed to transfer the technology to AB InBev breweries.

Project summary

Turning brewery by-products into fish food (LIFE-Brewery)

Brewers' spent grain and spent yeast are by-products of the brewing process. Most spent grain is turned into feed, but it only has a 48-hour shelf life. Brewers' spent yeast is mixed with wastewater and discharged as effluent. By optimising and scaling up a low carbon dehydration process the two by-products could become ingredients in aquaculture feeds. These will be tested in fish growth trials to optimise formulas and prove the potential for replication. The project is also expected to create up to 50 new jobs within three years of completion.

Project summary

A new means of removing emerging pollutants from wastewater (LIFE CLEAN UP)

New and emerging pollutants are synthetic or naturally occurring chemicals that are known or suspected of causing negative impacts on human health and the environment, but which are not yet commonly monitored. This project will demonstrate and validate a new process for removing emerging pollutants from wastewater, using an absorption system coupled with advanced oxidation technology involving light pulses, photocatalysis and photosensitisers. It thereby aims to show the feasibility at industrial scale of a process to degrade pollutants and pathogens that were not previously removed.

Project summary

Making bottles, jars and cosmetics using citrus peel (LIFE CITRUSPACK)

Spain produces around six million tonnes of citrus fruits per year. The sector generates a large amount of organic waste and also waste from non-biodegradable plastic packaging. This circular economy project will use treated citrus peel as a replacement for non-biodegradable plastics in the production of juice bottles and cosmetics jars. And it will complete the cycle by showing the use of pulp residues as natural ingredients in cosmetic creams.

Project summary

Solar-powered treatment of fruit and vegetable processing effluent (LIFE ALGAECAN)

Fruit and vegetable processing uses a lot of water, including for cleaning produce and machinery. The

sector generated an estimated 200 million m3 of wastewater in the EU in 2014. LIFE ALGAECAN will use innovative solar-powered algal treatment of effluents from fruit and vegetable processing. This is expected to produce a high-quality stream for discharge to water bodies at a fraction of the cost of standard aerobic treatment – a predicted 80% reduction in treatment costs.

Project summary

Helping smaller food and drink companies evaluate their environmental footprint (Life-RENDER)

Small and medium-sized companies often struggle to evaluate the environmental performance of their products using the Product Environmental Footprint methodology. Life-RENDER will develop and demonstrate an innovative decision-support tool that will help SMEs in the food and drink sector to carry out studies and to identify focused environmental measures.

Project summary

Making liquid biofuel from municipal waste (LIFE WASTE2BIOFUEL)

Treatment and reuse options are needed for municipal waste. This project will develop a new process for the thermal treatment of the biomass fraction of municipal solid waste and its processing into liquid biofuel. The process will reduce greenhouse gas emissions from waste treatment by an estimated 19%.

Project summary

Using old inefficient wind turbine blades to make roads (LIFE REFIBRE)

Wind turbine blades are made of glass-fibre reinforced plastic, a composite material that is difficult to recycle. LIFE REFIBRE will design and build an innovative prototype plant to recycle the blades and obtain glass fibres, which will be added to asphalt mixes for road construction. The fibres will improve the mechanical properties of road surfaces, increasing their durability and reducing maintenance requirements and costs.

Project summary

Removing pesticides and nitrates from groundwater (LIFE ECOGRANULARWATER)

Groundwater pollution can be a problem in intensively farmed areas, such as the province of Granada in southern Spain. Nitrates, phosphates and agrochemicals in soil percolate into aquifers, affecting water quality. To address this problem, this project will develop and demonstrate a new biological treatment method to remove organic and inorganic nutrients such as pesticides and nitrates from water. It is expected to remove 90% of those nutrients and make significant energy and cost savings in comparison with conventional treatment.

Project summary

Removing pollutants from abandoned mines (LIFE-DEMINE)

Abandoned mines are a major contamination concern, capable of polluting surrounding soils and water with heavy metals and salts. This is why the EU Mining Waste Directive requires a risk-based inventory of closed and abandoned mine sites. LIFE-DEMINE plans to demonstrate a mining effluent treatment process that combines proven membrane and electrocoagulation technologies for washing wastewater in a novel way. This will be used to treat wastewater from two abandoned mines: Nant Bwlch-yr-Haearn in Wales, UK, and Menteroda, Germany. It is expected to remove more than 95% of metals and salts, leaving a final effluent that is within legal limits and can be discharged to water bodies without risk. The project will also analyse the composition of at least 50 abandoned mine wastewaters in different European regions in preparation for transfer and upscaling of the process.

Project summary

Improving the desalination process (LIFE DREAMER)

Desalination of seawater could be an extremely important alternative source of drinking water if costs and environmental impacts can be reduced. This project seeks to show the value of an improved and more resource-efficient desalination process based on reverse osmosis. The technology aims to fully convert the seawater into usable water and other valuable products that can be used in various industries. Ultimately, the project aims to contribute to finding a long-term solution to the ever increasing pressures on global water resources.

Project summary

Reducing exposure to cancer-causing formaldehyde (LIFE SENSSEI)

Formaldehyde is a high-volume compound widely used in the manufacture of resins and adhesives and as a disinfectant, preservative and industrial additive. Formaldehyde is carcinogenic, which has implications for worker health and safety. LIFE SENSSEI is developing a real-time formaldehyde

monitoring and alarm system that will reduce workers' exposure to the compound by 20% and reduce the concentration of formaldehyde in air at facilities where it is used by 80%.

Project summary

Recovering valuable materials from steel galvanising (LIFE-2-ACID)

Around 20 million tonnes of galvanised steel is produced in the EU every year. Spent pickling acids from the steel galvanising process are typically treated using conventional processes, producing a residue that is sent to landfill. A new technology developed by this project promises to selectively recover zinc and iron chloride from spent pickling acids. The recovered zinc will be reused as a raw material for galvanising, and the iron chloride will be used as a reagent in wastewater treatment plants.

Project summary

Using polyurethane waste in building materials (LIFE REPOLYUSE)

Polyurethane is widely found in home furnishings: more than 3.5 million tonnes of the material is used in Europe each year. This generates some 675 000 tonnes/year of waste, most of which goes to landfill. This project sets out to increase the reuse of polyurethane waste that is currently managed as inert waste, or is recovered through techniques that are not environmentally sustainable. Using a novel technology, it will integrate polyurethane waste into new building materials, thereby extending its life-cycle. Widespread uptake of the new technology would also mean less gypsum needs to be mined.

Project summary

Making new food packaging from old fish boxes (LIFE EPS SURE)

Some 335,000 tonnes per year of expanded polystyrene is used for food packaging in the EU. Only 25% of this is recycled, 30% is incinerated, and the rest is landfilled. Polystyrene boxes containing fish products are a particular challenge for recyclers. LIFE EPS SURE has a potential solution: a technically and economically viable new process for converting those fish boxes into food-grade polystyrene. It will collect 10 tonnes of boxes from El Corte Inglés stores in Spain and produce 4-5 tonnes of recycled polystyrene. This will be used to make 40 prototypes of food contact packaging. A set of good manufacturing practices adapted to legal and operational requirements in Greece, Italy and the UK will set the scene for replication in those countries.

Project summary

Making farming profitable again in Mediterranean oak landscapes (LIFE Regenerate)

More than six million hectares of farmland in the Mediterranean basin are noted for their oak habitats. Known as *dehesas* in Spain, *montados* in Portugal and *meriagos* in Sardinia, Italy, these plantations are rapid declining as a result of rural abandonment and the low productivity as a source of wood; most are lossmaking. LIFE Regenerate intends to prove a sustainable and profitable new business model for small and medium-sized farms on oak-based silvopastoral systems in Spain and Sardinia and then scale it up to cover 5000 hectares in the three countries. The new model will be based on nature protection and resource efficiency – mosaic landscape management, multi-species rotational grazing and recycling of biomass waste to create new income streams (organic fertiliser, high-protein cattle feed, and cultivation of edible mushrooms). It is expected to increase biodiversity by 20% and bring economic benefits of €654 per hectare per year.

Project summary

Making new plastic products from commercial packaging waste (LIFE RECYPACK)

There is scope to improve the management of commercial plastics packaging waste in the EU. LIFE RECYCPACK is a demonstration project to foster green public procurement of this waste stream in towns and cities and show that it is a valuable resource. It will operate two recycling facilities, in Hungary and Spain, producing recycled polyethylene and polystyrene from such waste. The recycled material will be used to manufacture new plastic products, thereby closing the loop. The project will also evaluate the potential for replication of its recycling systems and circular economy business model in Belgium, Croatia, Poland, Romania and Turkey.

Project summary

Using sewage sludge in agriculture, construction and for energy (LIFE DRY4GAS)

LIFE DRY4GAS will develop a pilot plant to dry sewage sludge from wastewater treatment plants for reuse in energy generation, the construction industry and agriculture. The technology will be installed at an existing treatment plant in Torrepacheco,Spain, where it is expected to reduce waste volume by more than 80%. The project should bring numerous environmental benefits, including reducing carbon dioxide emissions by 880 to 1111 tonnes per year, cutting chemical fertiliser use and water

consumption by 20% and increasing carbon sequestration in soil by the same amount. It will also address negative environmental impacts associated with using sludge in agriculture.

Project summary

Converting waste heat from industry into energy (LIFE-HEAT-R)

This project will showcase a marketable, new technology for directly converting waste heat into electricity, based on a thermoelectric principle called the Seebeck effect. The technology consists of a modular unit using multiple thermo-electric generator cells controlled through a patented programmable control unit based on system-on-chip technology. The technology will be demonstrated in industrial sectors with high levels of waste heat emissions, through three pilot projects (classified by temperature ranges) that will permit part of the wasted energy to be recovered in the form of heat and transformed into electricity. The net effect will be to reduce greenhouse gas emissions.

Project summary

Substituting safer alternatives to conventional flame retardants (LIFE-FLAREX)

Flame retardants are a group of environmental contaminants used at relatively high concentrations in many sectors, notably the textile industry. Many of them are considered toxic, persistent and bio-accumulative. This project will support the substitution of flame retardants containing bromine, formaldehyde and antimony, used in textile finishing products with safer alternatives. It will identify potential substitutes and test and evaluate them at pre-industrial and industrial scale. It will thereby encourage the implementation and update of the REACH legislation.

Project summary

Recovering nitrogen and phosphorous from wastewater sludge (LIFE ENRICH)

The wastewater treatment sector discharges a lot of reusable nutrients into the environment. LIFE ENRICH will design and build a new sludge line configuration in Murcia Este's wastewater treatment plant to recover nitrogen and phosphorous for use in agriculture, either directly on crops or for fertiliser. The project will also define optimal recipes for fertilisation using products obtained from the process and demonstrate their agronomic properties. By recovering phosphorous, a critical raw material, this LIFE project will contribute directly to the implementation of the EU Circular Economy Action Plan.

Project summary

Enabling treatment plants to cope with excess toxic loads (Life BACTIWATER)

Many urban wastewater treatment plants have biological units, which contain bacterial cultures. An increase in the toxic load of wastewater harms the units' cleaning capacity. Such increases come from uncontrolled discharges with excess toxic loads and are often seasonal, coinciding with activities of certain industrial processes such as wine production or the canning sector. Life BACTIWATER aims to speed up the recovery of the treatment process when disrupted by these impacts by fostering the right bacterial action. The project expects to reduce recovery time by 20% and cut the amount of pollutants reaching natural water bodies when treatment plants fail.

Project summary

Reducing ammonia emissions from muck-spreading (LIFE-ARIMEDA)

According to the European Environment Agency, Spain was one of six EU Member States that, in 2014, exceeded the ammonia ceiling set out in the National Emission Ceilings Directive. This project aims to reduce the ammonia emissions associated with the spreading of manure in agriculture, by using the diluted liquid fraction of slurry and digestate in precision fertigation (fertilisers + irrigation) techniques. Through large-scale field trials it will show that it's possible to replace synthetic fertilisers and reduce the risks of eutrophication and nitrate leaching in agricultural soils.

Project summary

Demonstrating zero liquid discharge in the metal industry (LIFE DIME)

Metal surface treatment processes such as degreasing, acid pickling, alloy baths or lacquering generate large amounts of toxic liquid wastes. LIFE DIME will seek to prove that three effluent treatment technologies (extraction, crystallisation and membrane distillation) can be integrated into a 'zero liquid discharge' process in a new pilot plant. This solution is designed to recover raw materials from the hazardous waste stream for reuse, namely hydrochloric acid and metal salts. As well as avoiding the need for sludge disposal, the recovered materials could be worth an estimated €550,000 per plant per year.

Project summary

A new treatment technology for excess nitrates (Life LIBERNITRATE)

In Europe, 87% of groundwater is polluted by excess nitrates, and in intensive farming and cattle areas, the concentration in groundwater can reach one to seven times the legal level. Life LIBERNITRATE will build a prototype plant for the depuration of water with a high nitrate content. The plant will feature an adsorption bed made of active silica, obtained through a second prototype for treating waste ashes from the controlled incineration of rice straw. The project also plans to raise awareness amongst farmers of reducing nitrates at source by cutting their use of nitrogen fertilisers.

Project summary

New ways of removing natural radioactivity from drinking water (LIFE ALCHEMIA)

Naturally occurring radioactivity is present in sources of drinking water and can be a threat to human health. The most common current treatment, reverse osmosis, has a very high carbon footprint and generates large volumes of reject water containing radioactivity that requires further treatment. LIFE ALCHEMIA will develop four pilot plants in Spain and Estonia to test new ways of removing natural radioactivity from drinking water. These bed filters and hydrous manganese oxide technologies are expected to reduce the naturally occurring radioactive materials generated during the removal of radioactivity by 90%, as well as cutting treatment costs and greenhouse gas emissions.

Project summary

Obtaining gelatine and collagen from slaughterhouse wastes (LIFE byProtVal)

There is a need for improved techniques for the recovery and treatment of animal by-product wastes. The processing water and unmeltable residue (greaves) resulting from the rendering of animal fats and other by-products are potential sources of valuable gelatine and hydrolysed collagen. This LIFE project will show new treatment processes to recover the two desired materials and test collagen derivatives for use as chemical products, fertiliser or feed.

Project summary

Remediating soils with steel and power station residues (SUBproducts4LIFE)

Soils in many parts of Europe have been degraded by industrial activities. Residues from power stations (coal ash and synthetic gypsum) and steel works (blast furnace and steelmaking slag) could be used to remediate those soils. This project is dedicated to creating such an industrial symbiosis between industries and contaminated sites. Large quantities of the four 'sub-products' will be used in trials on former mines to improve soil and water quality, for instance, by reducing levels of arsenic and mercury in soil and leachate water through 'semi-natural' processes. The fixing capacity of the four residues will be verified in real-scale conditions, backed up by a life-cycle assessment, circular economy plan and replicability and transfer plan for each material.

Project summary

A cost-effective network of safe drinking fountains along the pilgrims' route (LIFE WATER WAY)

The presence of drinking fountains of good water quality along major walking routes, such as the Camino de Santiago in Galicia, could reduce consumption of bottled water and provide an inspiration to those responsible for managing other long-distance paths in Europe. LIFE WATER WAY will install 27 drinking water supply points of guaranteed good quality along a 155.2 km stretch of the pilgrims' route, spaced about an hour's walking distance apart. Renewable energy will be used to treat and pump the water with users paying a small fee to obtain it from a vending system. The new system should lead to a reduction in waste plastic bottles of 1.67 tonnes per year. If successful, 90 municipalities along the Camino de Santiago will install similar systems.

Project summary

Using weather radars and digital radio to speed up forest fire response (LIFETEC)

North-west Spain suffers the most forest fires in the country. These cause significant environmental damage. Early detection is critical for reducing response times and therefore the final burned area, along with improved communication and coordination. LIFETEC's objective is to show the efficacy of using existing weather radars to detect forest fires at an early stage; it will develop and test new early detection algorithms for this. The project will also demonstrate that TETRA (Terrestrial Trunked Radio) digital radio is a better technology than commercial mobile systems, which offer poor network coverage in rural areas, for communicating with and coordinating fire-fighting teams.

Project summary

LIFE Environmental Governance & Information (1 project – 0.8 million)

Increasing awareness of endangered brown bear populations (LIFE NATURA 2000 + BEAR)

Northern Spain is home to two small and endangered subpopulations of brown bears. Research shows that there is a lack of local awareness and acceptance of these bears and the Natura 2000 network in general. This project will engage with local communities to encourage changes in behavior and promote governance structures for better conservation of Natura 2000 sites and endangered bears. This will include media campaigns and participation at local events. The impact of the campaign will be measured through opinion polls.

Project summary

LIFE Climate Change Adaptation (4 projects – 8.2 million)

Helping smaller municipalities increase climate resilience (LIFE GOOD LOCAL ADAPT)

Towns and small cities are often less able to mainstream climate change adaptation into policies and practices than larger urban areas. This LIFE project is demonstrating that it can be done, by helping five municipalities in the Basque region to increase their resilience to heat waves and water scarcity. As well as green infrastructure in public spaces, this will involve renovating a demonstration building in Balmaseda to showcase five technologies for limiting the impact of heatwaves. The building will continue to be open to visitors and act as a reference after the project.

Project summary

Developing a common approach to sustainable energy and climate action (LIFE ADAPTATE)

Municipalities across Europe could benefit from a common methodology for developing sustainable energy and climate action plans. LIFE ADAPTATE will help six municipalities in Spain, Portugal and Latvia to develop such plans and begin to implement climate adaptation actions to increase resilience to floods and forest fires, for instance. All six will also sign up to the Covenant of Mayors. Lessons from the project will be turned into guidelines to inspire towns and cities throughout the EU.

Project summary

Testing cool pavements' impact on urban heat (LIFE HEATLAND)

Cool pavements are an emerging technology for reducing the 'urban heat island' effect, whereby temperatures remain high in built-up areas. LIFE HEATLAND will develop a new surface mixture and install it in Murcia, where one of the first monitored trials of cool pavements on city roads will take place. By collecting key data 24/7, the project will be able to devise a mathematical model to predict the effectiveness of the cool pavement in different urban areas. This will be tested in at least four other European cities. The expected impact of the new surface is significant: lowering pavement temperatures by 10°C and the surrounding air temperature by up to 1.5°C, as well as cutting energy use by refrigeration devices and street lighting.

Project summary

Encouraging farmers to adapt in Mediterranean dry farming areas (LIFE AMDRYC4)

Mediterranean dry farming areas are especially vulnerable to climate change impacts. To build resilience, this LIFE project will implement adaptation measures and promote them through a land stewardship entity and voluntary agreements with farmers. It will also distribute guidelines for applying accounting methodologies for organic carbon and ecosystem services. Sustainable, smart and integrated management is expected to lead to an increase in carbon sequestration activity and biodiversity and a reduction in soil loss.

Project summary

LIFE Climate Change Mitigation (2 projects – 2.4 million)

Testing a local market for climatic credits for forests (LIFE CLIMARK)

Sustainable forest management is vital to enhancing the mitigation capacity of forests, but there are no incentives for owners to manage their forests for mitigation purposes. To provide such incentives, LIFE CLIMARK will establish a local market of 'climatic credits' to promote multifunctional forest management for mitigation. The scheme will be trialled in Catalonia, Spain, and Veneto, Italy, where credits will be awarded for forestry practices that support three ecosystem services: carbon sink capacity, water use efficiency and biodiversity. This will be the first compensation scheme to include carbon emissions reduced or avoided through forest fire prevention measures. Replication will be ensured through engaging with forest owners in France and Spain and via a guide for policy-makers.

Project summary

Reducing emissions by feeding goats with citrus orchard and rice straw waste (LIFE LowCarbon Feed)

Eliminating rice straw and pruning waste from citrus orchards would save more than 3.7 million tonnes

CO2 equivalent per year. In this project, the two waste streams will be converted into a climate-friendly feed for goats that will lower their intestinal methane emissions. Goats consuming the feed are expected to give off 20% less greenhouse gas emissions. Goat farming in Europe is responsible for more than 1.4 tonnes CO2 equivalent per year, so replication of the project could have a significant impact on this major source of emissions.

Project summary

UNITED KINGDOM (UK) (4 projects – 13.8 million)

LIFE Nature & Biodiversity (3 projects – 13.1 million)

Boosting biosecurity awareness and response in England (Rapid LIFE)

Invasive alien species are one of the main causes of biodiversity loss, taking habitat and food source from indigenous fauna and flora. This project will deliver a package of measures to reduce the impact and spread of invasive species, such as, in rivers, lakes and coasts across England, thereby helping to protect threatened species. It will prevent the introduction of new invasive alien species by increasing biosecurity awareness among target audiences, such as fisheries and the tourism sector. The efficacy of early warning and rapid response systems in England will be improved and localised rapid response protocols developed to combat new invasive alien species.

Project summary

Improving the condition of raised bogs in Wales (LIFE Welsh Raised Bogs)

In addition to their value to nature, raised bog habitats are an important carbon sink, sequestering atmospheric carbon dioxide. Today raised bogs in Wales are in a poor condition due to peat cutting, drainage and artificially steep surface gradients that promote water loss. This LIFE project plans to improve 694 hectares of active raised bogs and over 275 hectares of degraded raised bogs (and associated habitats) in seven Natura 2000 sites in Wales. Actions will include reintroducing a water management regime, damming drainage features and restoring marginal ditches. The project will also tackle scrub encroachment and the spread of the problem species, Molinia, a moor grass.

Project summary

Restoring badly-eroded blanket bogs (Pennine PeatLIFE)

Located in the North Pennines, this project will demonstrate and evaluate geographically appropriate restoration techniques for blanket bogs, a priority habitat for conservation according to the EU Habitats Directive. This involves directly targeting the restoration of 1353 hectares of badly eroded blanket bog habitat, both within Natura 2000 sites and in other upland sites. It will also develop and showcase a means for paying for ecosystem services that are linked to the use of drones to assess vegetation change.

Project summary

LIFE Climate Governance & Information (1 project – 0.7 million)

Training refrigeration and air conditioning technicians to use gases with a lower global warming potential (REAL Alternatives 4 LIFE)

The EU Regulation on fluorinated greenhouse gases requires the refrigeration and air conditioning sectors to phase out the use of refrigerant gases with a high global warming potential by 2030. To achieve this, technicians need to know about and be trained to use alternative refrigerant gases. This LIFE project will use low-cost, accessible e-learning and train-the-trainer programmes to reach this goal. Modules will be available in 13 languages, making the information relevant to 85% of the 228,000 refrigeration and air conditioning technicians in the EU.

Project summary

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