



# LIFE Climate Action workshop

LIFE CLIMATE ACTION 2014-2017:  
Main themes, financial instruments, integrated  
projects, best practice

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# LIFE Climate Action workshop

LIFE CLIMATE ACTION 2014-2017:

Main themes



# Climate Change Mitigation (CCM)

- **Integrated climate change mitigation projects** implementing established Union, national or regional climate change mitigation plans (see LIFE Regulation and MAWP 2014-2017)
- **Small scale pilot** (=innovative, but not research!), **demonstration and best practice** projects
- Projects funded by the **financial instrument Private Finance for Energy Efficiency (PF4EE)**
- **Emphasis** for 2014 on **land use management and agriculture**



# CCM – climate policy priorities

- **Land use sector:**

- e.g. landscape and land management strategies and practices which limit emissions, particularly organic soils,
- conservation of natural carbon sinks

- Greenhouse gas **monitoring and accounting** of land use

- e.g. projects which improve monitoring and accounting of carbon stocks, effects of loss of grasslands or peatlands,
- Contribution to LULUCF accounting rules



# CCM – climate policy priorities

- Sustainable use of solid **biomass**
  - e.g. new approaches for production, consumption of biomass, in a sustainable way.
  - transformation into long term carbon stores.
- **Agriculture:**
  - e.g. implementation of low carbon farming practices with a transformational impact, or which increase carbon storage / levels of organic soil matter.
  - analysis and development of improvements for existing climate measures under the CAP.



# Climate change Adaptation (CCA)

- **Integrated climate change adaptation projects**, e.g. implementing Union, national or regional climate change adaptation plans (see LIFE Regulation and MAWP 2014-2017)
- **Small scale pilot** (=innovative, but not research!), **demonstration and best practice** projects
- Projects funded by the **financial instrument Natural Capital Financing Facility (NCFF)**



## CCA – Climate policy priorities

- Cross-border management of **floods**, fostering collaborative agreements based on the EU Floods Directive
- Trans-boundary **coastal management**, with emphasis on densely populated deltas and coastal cities
- Mainstreaming adaptation into **urban** land use planning, building layouts and natural resources management
- **Mountain and island areas**, with emphasis on sustainable and resilient agricultural, forestry and tourism sectors
- Sustainable management of water; combating desertification and forest fires in **drought-prone areas**.



# CCA – Climate policy priorities

## Moreover:

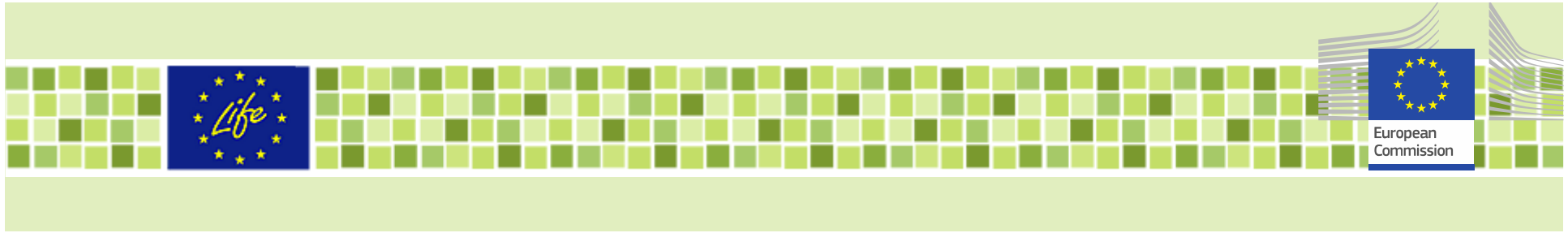
- **Green infrastructure** and ecosystem-based approaches to adaptation.
- **Innovative** adaptation technologies.
- **Vulnerability** assessments and adaptation strategies, including those with a cross-border nature.
- **Awareness** raising and exchange of good practice actions on adaptation indicators, options, risk communication and management





# CCA Climate policy priorities: The Urban Environment

- Developing and implementing local adaptation strategies in the framework of "**Mayors Adapt**";
- Developing and deploying innovative adaptation technologies in urban areas, including in the **water, energy and construction sectors**;
- Promoting and developing **green infrastructure in cities**, including combating the **urban heat island effect**;
- Low carbon projects contributing at the same time to **climate mitigation and adaptation** as well as **nature conservation and biodiversity objectives in urban areas**.



# Climate Governance & Information(**GIC**):

- ➔ **"Traditional": information and awareness raising** projects and projects facilitating knowledge sharing;
- ➔ Support for **cooperation networks** and best practices for the **application of climate regulation and enforcement**
- ➔ Promotion of a **better governance** by broadening stakeholder involvement in implementation and by promoting more effective compliance with EU climate legislation.



## GIC – Information and Awareness

- Awareness of **sustainable biomass production** in an integrated perspective (biodiversity, forest, other land)
- Develop **publicly available data bases** to promote a deep analysis of the effects of the **use of market-based instruments, disseminate** the results and **stimulate discussion, in particular on the EU ETS**
- Raise capacity of local, regional, national authorities to facilitate the inclusion of **monitoring of potentials for carbon storage or emission saving** into e.g. **public spatial planning**



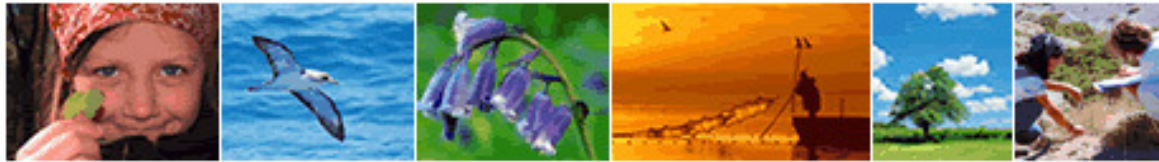
## GIC – Information and Awareness

- **Development and awareness of best practices** in the field of **climate policy evaluation** to support development of cost-effective climate action. Concerning adaptation this should include indicators, risk communication and management
- Awareness raising on **climate change vulnerabilities** and climate change adaptation options, including on how adaptation strategies are **applied in a local and regional context**



# GIC – Better governance by broadening stakeholder involvement

- **Exchange of best practice** on enabling mechanisms, including public-private financing mechanisms and innovative solutions for industrial processes and production methods to **facilitate low emission transition of industry and the power sector, transport and building sectors**
- Share and develop expertise across Europe on the **challenges and opportunities** related to the **2030 climate and energy objectives**, e.g. harmful taxation/subsidies, EE and RE policies, enabling legislative framework for how private sector can contribute to restoring public finance, reduce energy dependency and create jobs while reducing emissions



# LIFE Climate Action workshop

LIFE CLIMATE ACTION 2014-2017:

Financial instruments



# LIFE: why financial instruments?

- ↓ **Make optimal use of scarce public funds**, i.e. identify ways of increasing leverage
- ↓ **Testing new instruments** to mobilise or "crowd in" private finance
- ↓ **Address specific market barriers** by investing in projects that are not considered commercially viable today but have the potential to be so in the future
- ↓ **'Fill the gap' in the financial market** and demonstrate the business case for 'higher-risk' projects
- ↓ **Facilitate market uptake** of climate friendly actions and greening of financial intermediaries via financial instruments



# LIFE: two pilot instruments

**Overall objective:** Pilot concepts for "green" financial instruments; widen the financing opportunities for "green investments":

➔ **Private Financing for Energy Efficiency (PF4EE):** M€ 80 from LIFE Climate Action. Link with the EIB's initiative "DEEP Green"

➔ **Natural Capital Financial Facility (NCFF):** M€ 30 from LIFE Environment and M€ 30 from LIFE Climate Action; plus matching funds from EIB of M€ 50



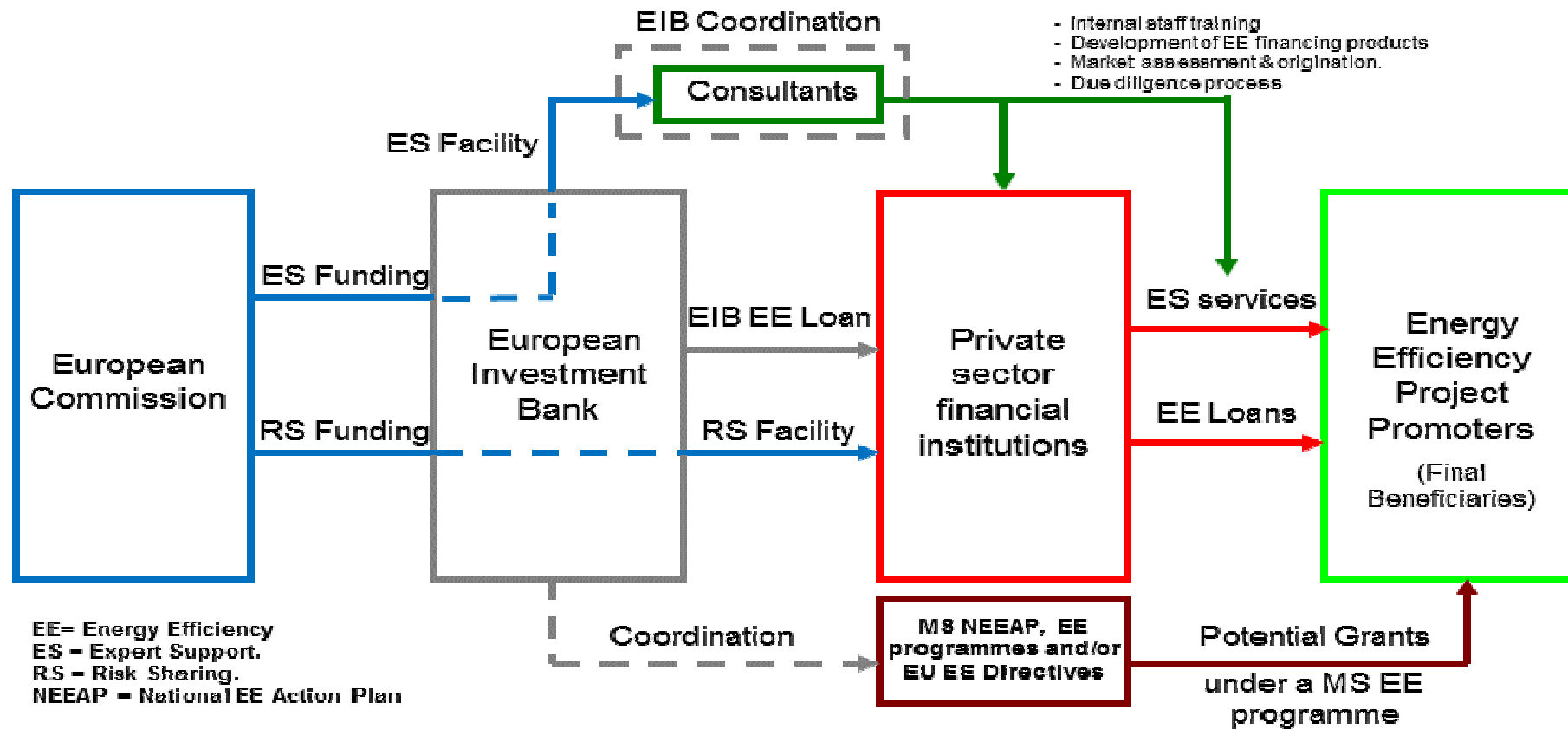


## Objectives of the PF4EE

1. To make energy efficiency lending a more sustainable activity across financial institutions (FIs) in Europe;
2. To encourage private commercial banks and other financial intermediaries to address the energy efficiency sector as a distinct market segment;
3. To increase lending for energy efficiency in response to priorities identified by Member States' National Energy Efficiency Action Plans.



# PF4EE: Structure



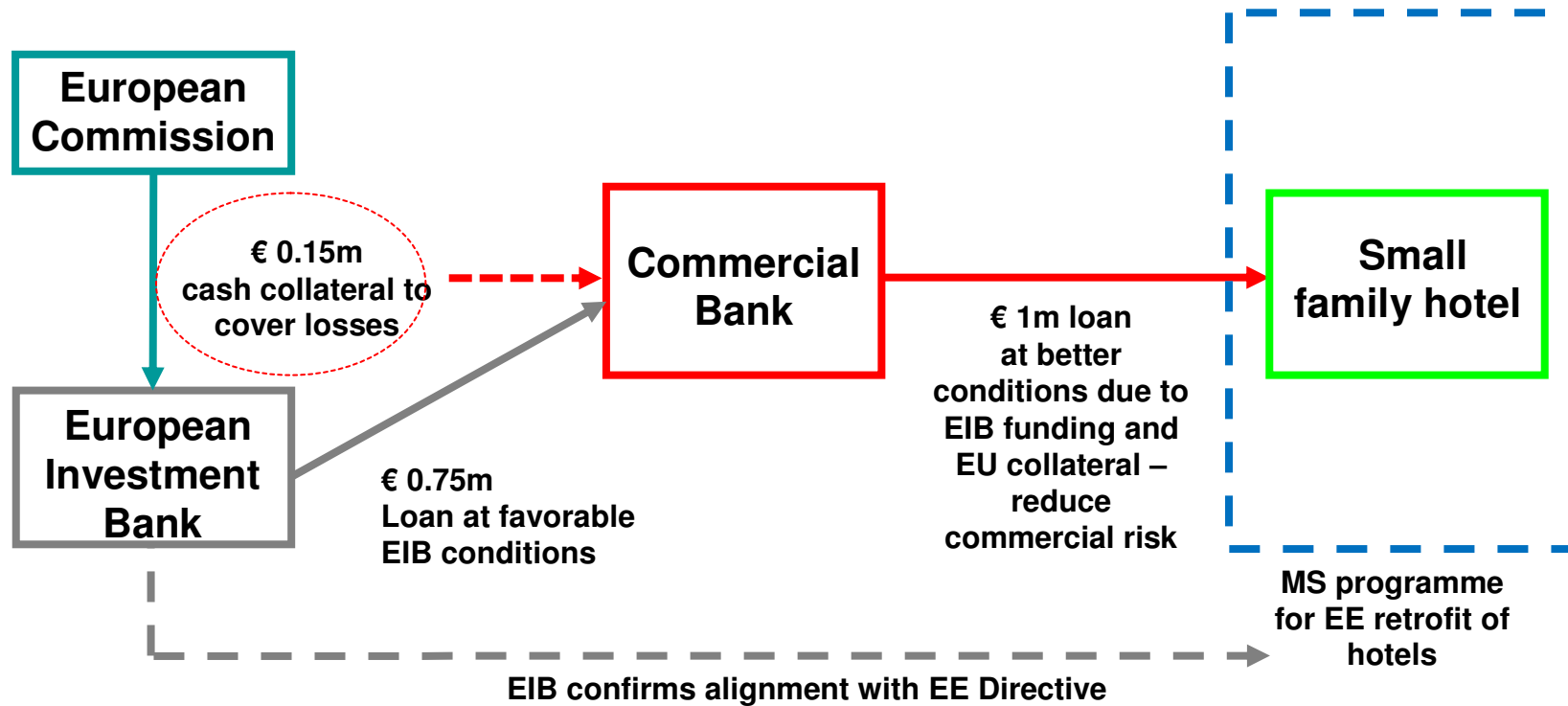


## PF4EE: Example





# PF4EE: Example





## PF4EE complementarity with MS instruments

- Numerous MS' programmes provide support to funding EE;
- Cohesion policy funding will allocate min. € 23 billion to EE/RES and urban transport (doubling current allocations);
- However, this is often in the form of grants and public sector activity, and doesn't cover the full cost of projects;
- Financial instruments can complement grant schemes;
- PF4EE will test new approach to be up scaled by financial instruments supported by structural funds.



# Natural Capital Financial Facility (NCFF)

- **Why?** Financing gap for biodiversity and adaptation; emerging market opportunities for investments in natural capital
- **Market failures:** perceived high risks, lack of track record, long pay-back periods

Objectives:

- **Encourage investments** in revenue-generating or cost-saving projects promoting the conservation of natural capital to meet biodiversity/adaptation objectives and support green growth;
- **Demonstrate** to private investors the attractiveness of natural capital projects; build project pipeline



# NCFF - Approach

- **Investment facility:** (debt and equity, direct and indirect) + support facility (building pipeline, project development)
- **2 stages approach:** i/ Pilot phase (2014-2017) for testing approaches; ii/ Operational/roll out phase (2017-2020)
- **Participants:** European Commission; EIB (matching amounts for investments; manager of facility); other investors in operational phase
- **Challenges:** testing the various financial mechanisms and project categories; ensuring a broad geographical reach in the EU



# NCFF : Example of project based on payment for ecosystem services

- A brewery's production is affected by the practices of upstream land managers, with impact on water quality.
- Land managers would need to invest to change practices but have no funds:
- *How to generate funds / save costs?*
- Contractual arrangement between brewery and land manager: payment by brewery to land manager for the ecosystem services they provide, from cost savings
- Could create co-benefits on biodiversity protection, climate resilience, for example to create a buffer strip and/or other management practices.





## NCFF: Example of project – cont.

- ↘ What is the role of the NCFF?
- ↘ Investment facility: Provide funding for the loan supporting the necessary investments.
- ↘ Support facility: Help coordinate between the brewery and land managers, therefore securing the business model of the approach.
- ↘ Address barriers: Lack of track record (difficulty in monetising the expected benefits), long payback periods



# Benefits of pilot financial instruments

- An optimal policy response requires the use of an array of regulatory and financial support tools, including action grants, integrated projects and financial instruments, that can adequately address different challenges and constraints
- Inducing transitional change requires innovative ways of mobilising private finance in order to meet Europe's current and future climate and environment objectives
- Instruments linked to strategic areas of EU climate action, i.e. energy efficiency and adaptation, and complement other climate-related financing. NCFF is also linked to EU environmental policy on natural capital preservation



# LIFE Climate Action workshop

LIFE CLIMATE ACTION 2014-2017:

Best practice projects and lessons for 2014-2017

# Introduction to the projects

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- The LIFE Best Environment Awards 2012 illustrate the demonstration value of the LIFE programme and the importance of replicable project results.
- These three projects have been chosen for presentation at this workshop as they demonstrate some of the **critical qualities** that will be important in the new LIFE Climate sub-programme.
- They are also illustrative of **relevant topic areas** for funding.



# Projects

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- ***An overview of the CARBONMARK LIFE07 ENV/IT/000388 project – Climate change mitigation***
- ***An overview of the TRUST LIFE07 ENV/IT/000475 project – climate change adaptation***
- ***An overview of the EcoPest LIFE07 ENV/GR/000266 project – Lessons for CCM/CCA***



# CARBONMARK LIFE07 ENV/IT/000388 - Top marks for local carbon trading scheme

- LIFE CARBOMARK successfully promoted voluntary carbon markets to reduce GHGs in two Italian regions. This local initiative is designed to be easily replicated.
- As well as being an instrument for strengthening EU policies related to the Kyoto agreement, the markets would also aid implementation of the 'EU Forest Action Plan' under the Sixth Environment Action Programme.
- These goals were achieved by setting up a model for a local market for carbon credits that would help reduce and compensate for GHG emissions (the two participating regions were Veneto and Friuli-Venezia Giulia, both in north-east Italy).



CARBOMARK promoted voluntary local-scale carbon markets





# Objectives...

- Consolidate the **knowledge base for supporting EU policy and legislation** related to voluntary **local carbon markets** (trading carbon quotas) as a tool for reducing GHG emissions within the Kyoto Protocol framework;
- **Facilitate the implementation of strategies** for mitigating GHG at local and regional level that are consistent with Community environmental policies;
- Establish the legislative and technical background necessary to support and **improve the dissemination** of regional carbon markets at national and European level;
- Recognise the role of **sustainable soil management strategies** as a temporary but important measure for absorbing CO<sub>2</sub> from the atmosphere;
- **Involve SMEs** in contributing to the survival of the forest economy, also in more marginal lands;
- Improve the **awareness of stakeholders**, particularly forest owners and SMEs, about the need to adopt initiatives for the mitigation of GHG emissions into the atmosphere.

**Project number:** LIFE07 ENV/IT/000388

**Title:** CARBOMARK - Improvement of policies toward local voluntary carbon markets for climate change mitigation

**Beneficiary:** Veneto Region department of forest planning & research

**Contact:** Maurizio Dissegna

**Email:** maurizio.dissegna@regione.veneto.it

**Website:** <http://www.carbomark.org>

**Period:** 01-Jan-2009 to 31-Dec-2011

**Total budget:** 1 088 000

**LIFE contribution:** 544 000



## Defining the market...

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- The research work led to the definition of three main principles of local carbon markets and helped establish activities that can be considered as sources of carbon credits:
  - **Permanence** refers to stable CO<sub>2</sub> sequestration achieved by project activities. Carbon stocking is a ‘temporary’ measure whose effects on climate change mitigation directly depends on its remaining in an unaltered condition in the wood mass for a significant time. This concept is important e.g. in the case of forest management, when considering possible losses caused by disturbances (such as fires, plant pathologies and falling trees) that can turn the ecosystem from an absorber into a carbon emitter;
  - **Additionality** means that projects are only eligible for carbon credits if the resulting emission reductions are ‘additional’ to any that would occur in the absence of the certified project activity. It is a mitigation activity that determines additional carbon sequestration compared with the ‘baseline’;
  - **Baseline** represents the scenario that would have been, if no initiative had been undertaken. In forest activities, for example, the baseline scenario is represented by the existing carbon stocks and sequestration before the project was implemented.





## *Market implementation...*

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- The results of the preliminary studies were adopted and integrated into the CARBOMARK Manual to aid the implementation of local carbon markets in the two regions targeted.
- It defines the method for calculating carbon shares, taking into account the three basic principles.
- The document considers three types of carbon stocking: forest management, wood products and urban forest. A fourth stocking opportunity, currently considered as ‘experimental’, is biochar (charcoal created by pyrolysis of biomass).
- Two “Observatories” were established by the project, which are local offices, set up by the regional governments to provide advice and monitor the regularity of carbon market transactions.
- A project website was also created to regulate transactions of carbon credits between buyers and sellers. During the project three public auctions for selling carbon credits were held.



## *Some final results...*

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- At the end of the project, 21 private companies – including small, medium-sized and large enterprises - and 27 public forest owners had joined the CARBOMARK initiative and three buying contracts had been signed.
- 250 tonnes of carbon will be stocked and the companies will reduce their emissions by adopting policies that will improve their environmental performance.
- The effectiveness of the strategy proposed was confirmed at the World Climate Summit held in Durban, South Africa on 3-4 December 2011.
- Finally, CARBOMARK's achievements are included in a Forest Trends ecosystem marketplace report (March 2012) "Bringing it home: Taking stock of government engagement with the voluntary carbon market"<sup>1</sup>. It is highlighted as one of 13 government initiatives globally to establish voluntary carbon markets of which, only three are in Europe.



# Projects

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# TRUST LIFE07 ENV/IT/000475 - Safeguarding stressed groundwater supplies

- The TRUST project has succeeded in **building the capacity for river-basin governance** of stressed groundwater supplies.
- It has improved understanding of the likely impacts of future climate change and land-use on groundwater resources and investigated the most **cost-effective measures for improving aquifer recharge.**

**Project number:** LIFE07 ENV/IT/000475

**Title:** TRUST - Tool for regional scale assessment of groundwater storage improvement in adaptation to climate change

**Beneficiary:** Authority of the Isonzo, Tagliamento, Livenza, Piave and Brenta-Bacchiglione River Basins

**Contact:** Francesco Baruffi

**Email:** [segreteria@adbve.i](mailto:segreteria@adbve.i)

**Website:** [www.lifetrust.it](http://www.lifetrust.it)

**Period:** 01-Jan-2009 to 31-Dec-2011

**Total budget:** 1 838 000

**LIFE contribution:** 898 000



## *The problem...*

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- Some EU localities already experience situations of **water stress** when extraction of **groundwater resources** outstrips natural replenishment.
- Many Mediterranean cities and tourist destinations face particular risks, which will increase with climate change.
- The **EU's Water Framework Directive** requires Member States to design River Basin Management Plans to improve management of essential water resources. These should include monitoring, assessment and protection of groundwater supplies with the aim to achieve a “good status” by 2015. The main challenge is to **achieve a balance between water abstraction and recharge** of the aquifers.



## The solution...

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- This challenge led the Italian Authority of the Northern Adriatic river basins to develop the LIFE project TRUST for the river basins of the Veneto and Friuli high plain – Isonzo, Tagliamento, Livenza, Piave and Brenta-Bacchiglione.
- The project sought to **bring stakeholders together to improve understanding** of the current causes of water imbalance and the best means to overcome them.
- An engineer at project partner SGI Studio Galli, highlights: *“We wanted to investigate the likely future effects of climate change and land-use on the availability of groundwater to **include these aspects in successful water management planning.**”*





# Gathering the data

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- The project established a Technical Board that included all the key stakeholders concerned with groundwater management and exploitation.
- Stakeholders' participation proved fundamental for guaranteeing the consistency of the project activities and achieving the project goals and long term sustainability of the project results.

*“The amount of data that we received was much higher thanks to working together through the project than if we had simply asked stakeholders as part of our daily institutional functions.”*

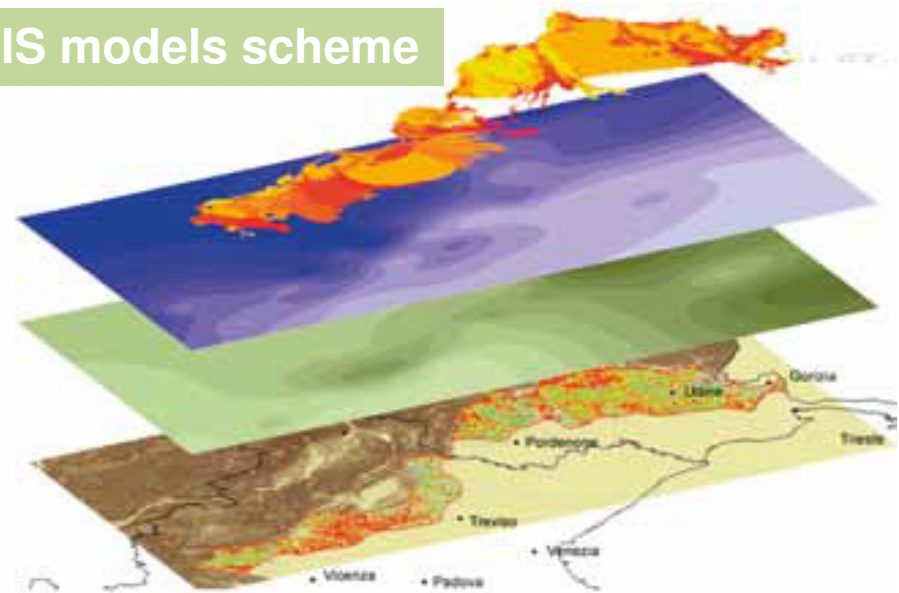
- A Web GIS database was implemented with all the data used and produced in the project. The database is accessible from the project website ([www.lifetrust.it](http://www.lifetrust.it)) and contains hydrological and hydro-geological information, and modelling results.
- Following the end of TRUST, the project coordinating beneficiary and the stakeholders will use the database for the planning and management of water resources of the Veneto and Friuli regions.



# Modelling future hydrology

- The project performed simulations of climate change scenarios using the CMCC climate models.
- This modelling exercise found that in the study area, during the twenty-first century the land temperature could increase by approximately 5°C, especially during the summer season, accompanied by a reduction in rainfall (about ~ 0.5 mm/day towards the end of the century).
- The forecasted climate change scenarios were used to quantify the water deficits until the end of the twenty-first century for irrigation of summer crops based on remote sensing and GIS-based modelling techniques.

GIS models scheme





## *Modelling future hydrology II*

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- The project then developed an **innovative hydrological model** to estimate the flows of the rivers that feed the aquifer in the study area and the variations of river flows induced by future climate scenarios.
- It found that the river flows will increase in the winter and will decrease in the summer, spring and autumn seasons. **A groundwater model** was developed to analyse the variations in the hydrogeological balance.
- Additionally the effectiveness of Managed Aquifer Recharge (MAR) **techniques was tested at demonstration sites** to verify the effect of different land cover, lithology and irrigation techniques. The modelling simulations showed that by the end of the twenty-first century the annual aquifer recharge could be reduced by 7% in Veneto and by 11% in Friuli.



# Regional risk assessment and assessing aquifer recharge techniques

- A Regional Risk Assessment was conducted to determine the areas affected by the risks of water deficit for irrigation and nitrate pollution of groundwater.
- The tool showed that the impact in water availability for irrigation can be significant: 50% of the agricultural areas at risk fell into the High to Very High risk, mainly concentrated in the Friuli region.
- **The MAR demonstrations showed the effectiveness of MAR for restoring the aquifer.**
- The application of MAR on an area of 100 hectares could recharge the aquifer with approximately 50 million cubic meters of water and, simultaneously, provide €60 000 from the sale of fast growing plants cultivated in the MAR sites



*Artificial irrigation channels on agricultural land were filled with water enabling it to seep into the ground and recharge the aquifer*



# *New synergies, new enthusiasm*

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- TRUST has established a solid basis for enhancing the management of groundwater resources in the river basins of the Veneto and Friuli plains:  
“We are entering a new planning period and the results of the TRUST project will translate themselves perfectly in the programming tools.”
- The online GIS database and modelling tools are already being used by planners and managers of water resources.  
“Concrete measures to improve the water balance identified by the project will be included in revised river basin management plans from 2015.”
- Another of the main strengths of the project was in successfully engaging stakeholders.  
“Getting planners, managers and users to participate together proved fundamental for guaranteeing the consistency of the project activities and achieving the project goals and long-term sustainability of the project results.”
- The project has created new synergies and enthusiasm for improved water management in the area.



# Projects

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- *An overview of the TRUST LIFE07 ENV/IT/000475 project – climate change adaptation*
- **An overview of the EcoPest LIFE07 ENV/GR/000266 project – Lessons for CCM/CCA**





# *EcoPest LIFE07 ENV/GR/000266 - Pioneering strategies for sustainable use of pesticides*

- The EcoPest project developed best strategies for implementing the ‘**Sustainable use of pesticides Directive**’ (2009/128/EC) through pilot activities carried out in a vulnerable ecosystem north of Athens.
- The target area of the project is one of the most productive basins in Greece, home to intensive agricultural activities. Due to its potential for high groundwater and its proximity to Attika, it has become an emergency source of water for Yliki Lake, which supplies drinking water to the greater Athens area.



# Objectives

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- The EcoPest project aimed to:
  - Develop and implement a **low-input agricultural strategy** for hazard and risk minimisation with special focus on water protection;
  - **Map** the targeted area and carry out environmental monitoring;
  - Define appropriate **risk indicators** for the estimation of pesticide impact on aquatic systems;
  - **Train local stakeholders**;
  - Develop a **national certification scheme** for spraying equipment and accessories for the professional user of pesticides, distributors and advisors;
  - **Incorporate the project deliverables** into national environmental policy and legislation and into the national standards for crop management;
  - **Disseminate** a crop protection system that focuses on EU environmental policy and the thematic strategy for the sustainable use of pesticides.



# The challenge and the solution

- Intensive agriculture is important to the economy of the region. However, it has to comply with European safety standards for human health and the environment.

*“The challenge was to protect the aquatic ecosystems and soils from the impacts of high concentrations of potentially toxic substances due to excessive use of pesticides and fertilisers,” Project manager Dr Kiki Machera.*
- To meet this challenge and achieve the end result of strategies for sustainable use of pesticides, the project developed a **‘Low Input Crop Management’ (LCM) system** and agroenvironmental safety principles for human health and the environment.
- This system was **applied on a pilot** scale on 900 ha of agricultural land (cotton maize and plum tomatoes at Viotikos Kiffissos river basin adjacent to lake Yliki

**Project number:** LIFE07 ENV/GR/000266

**Title:** EcoPest - ‘Strategic plan for the adaptation and application of the principles for the sustainable use of pesticides in a vulnerable ecosystem’

**Beneficiary:** Benaki Phytopathological Institute

**Contact:** Kiki Machera

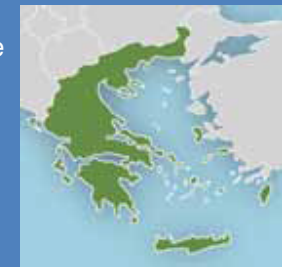
**Email:** K.Machera@bpi.gr

**Website:** <http://www.ecopest.gr/>

**Period:** 01-Jan-2009 to 31-Mar-2012

**Total budget:** □1 645 000

**LIFE contribution:** □823 000



# Monitoring and sampling...

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- The Ecopest project established a basis for environmental monitoring and defined appropriate **risk indicators**.
- Before the pilot measures could be carried out, the project needed to first identify the **baseline** for carrying out monitoring activities and defining risk indicators and indicators for sustainable implementation.
- Subsequent **monitoring and assessment** activities included:
  - the identification of point sources of pollution and pest occurrence;
  - the compilation of data on the level of pollutants and priority substances for drinking water quality standards; and
  - the compilation of data on the hazardous potential to non-target organisms
- These activities enabled the project to **develop and implement low-input crop management systems**.





# Steps towards sustainability...

- In order to achieve the reductions, the project applied a **range of innovative technologies** to minimise contamination from agriculture.
- The project **rationalised the use of pesticides and fertilisers**, replacing them, with non-chemical and alternative methods of controlling weeds, pests and diseases.
- It was found that by only applying chemicals in the corridors between rows of plants (band application) herbicide use was reduced by 60%.
- Further reductions were possible using the 'weed seeker', a sensor placed on the tractor that locates weeds and allows the targeted use of herbicides.



*Band application of chemicals reduced herbicide use by 60%*



## *Steps towards sustainability II...*

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- The project established a process for disposing of empty pesticide containers.
- Training was also organised to encourage farmers to rinse the pesticide containers in order to effectively eliminate any residues they might still have contained.
- The project team set up a liquid pesticide collection system called 'Heliosec' in two locations, thus offering a possible solution for the management of the liquid waste that derives from the remnants of the spraying solution.
- A strategy to minimise 'spray drift', the unplanned exposure of people and the environment to drifting pesticides, was developed, involving the use of low drift nozzles as well as the calibration and maintenance of spraying equipment.
- The project demonstrated that drift can be reduced from 1.62% of the application rate to 0-0.18% at a distance of more than 2m.



## *A positive impact...*

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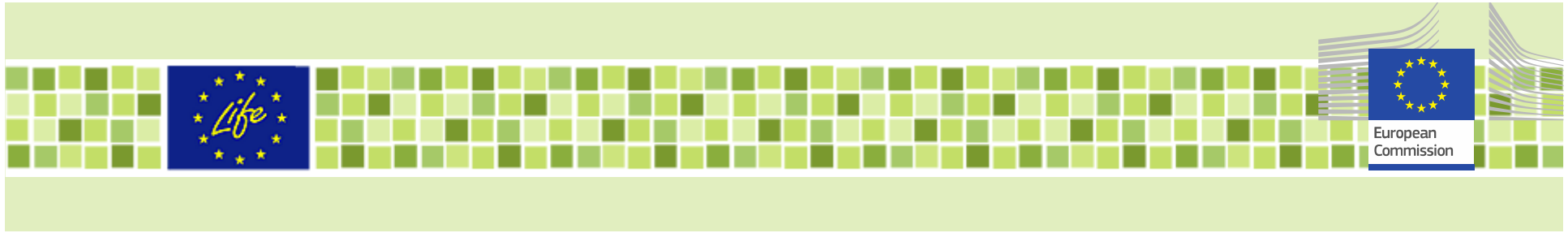
- Results showed that the project innovations helped achieve a **30% reduction in the amount of pesticide needed** to produce the crops cultivated in the pilot area.
- The frequency index treatment (how often the pesticides are applied) was reduced by 67%, which translated to a 70% reduction of pesticide concentration in well water and a reduction in the toxicity of the environmental samples on the indicator organisms.
- Around **220 farmers were trained to apply LCM systems** on cotton, maize and plum tomatoes. They also received training in spraying techniques, safe use of pesticides and fertilisers, personal protection (e.g. wearing gloves and overalls), the disposal of empty pesticide containers and the safe storage of pesticides and fertilisers.
- Overall, the project made a considerable contribution to the **strengthening of Greek environmental legislation**. Inform development of a **national certification scheme for spraying** equipment and the professional use of pesticides, distributors and advisors.



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# Opportunity for Q&A





Thank you for your attention!

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