PORTRAITS

Project Stories from the CENTRAL EUROPE Programme

Environmental Risk Management and Climate Change

CENTRAL EUROPE
COOPERATING FOR SUCCESS.

EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND

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Editorial

Central Europe boasts an impressive diversity of natural resources, including the Danube River, the Alps, the Carpathian Mountains and the Baltic and Adriatic seas. This unique natural heritage is one of the area's biggest assets when it comes to achieving sustainable development. However, in recent years, central Europe has been exposed to severe flooding of its rivers and intensive, often unsustainable land use. Both natural risks and man-made impacts constitute a considerable threat to the area.

In response, CENTRAL EUROPE projects help regions to manage and reduce the risks and impacts of environmental hazards and to adapt to climate change. CEframe (p.18) for example strengthens transnational flood protection management in river catchments. Projects like HABIT-CHANGE (p.34) and EULAKES (p.28) prepare adaptation strategies to climate change.

Human activities like industrialisation, intensive agriculture, increased vehicular traffic and tourism threaten to fundamentally transform central Europe's current ecosystems – by reducing the number of surviving species and dramatically changing where those species live and how they interact. Therefore protecting biodiversity and ecosystems, and revitalising natural landscapes are an important topic in central Europe.

In response, CENTRAL EUROPE projects like TransEcoNet (p.52) develop and protect biodiversity in ecological networks or visualise landscape development scenarios in 3D as does Vital Landscapes (p.66). URBAN_WFTP (p.62) introduces new approach to water management, while URBAN SMS (p.60) and similar projects evaluate soil quality and improve soil management. Projects like CERREC (p.20) and TransWaste (p.54) promote waste collection and reuse across borders.

This booklet introduces you to the CENTRAL EUROPE story, showcasing 26 environment projects that were co-financed since 2007. We hope that it will serve as a valuable starting point for discussing achievements of our projects and that it will inspire you on what can be done further and what directions should be taken in view of the programming period 2014-2020.

Christiane Breznik,
City of Vienna,
CENTRAL EUROPE
Managing Authority

CENTRAL EUROPE

Cooperating across borders for the regions

The cities and rural regions of central Europe share a common history as well as similar social and cultural characteristics. The area covers more than one million square kilometres, stretching from the Baltic Sea in the north to the Mediterranean Sea in the south, with less clearly defined borders to the west and east. It is home to 150 million people – benefitting from transnational cooperation through the CENTRAL EUROPE Programme since 2007.

Despite their common characteristics, the regions of central Europe are marked by diverse features: Major differences are apparent in terms of climate conditions, land use, settlement and economic structures, accessibility, and ecological challenges. There are also big differences in central Europe's political and administrative structures, which are among the most heterogeneous in the European Union. The challenge is to use central Europe's diversity as an opportunity to promote more sustainable development of the area – by fostering increased cooperation among a wide range of actors from various countries and regions.

CENTRAL EUROPE 2007-2013

The CENTRAL EUROPE Programme has generated ample opportunities for closer cooperation among public authorities, institutions and private businesses from nine central European countries: Austria, the Czech Republic, Germany, Hungary, Italy, Poland, Slovakia, Slovenia and Ukraine. By co-financing 124 projects, the CENTRAL EUROPE Programme has helped to improve local and regional innovation, to increase accessibility, to preserve the environment and to enhance the competitiveness and attractiveness of regions within central Europe.
Since 2007 the CENTRAL EUROPE Programme has invested more than EUR 230 million on transnational projects supporting:

- Technology transfer and business innovation
- Sustainable public transport and logistics
- Environmental risk management and climate change
- Energy efficiency and renewable energies
- Demographic change and knowledge development
- Cultural heritage and creative resources

Programme: CENTRAL EUROPE
ERDF funding: € 231 million
Duration: 2007 - 2013 (2015)
Website: www.central2013.eu

498 000 000

Euros of investment being prepared by CENTRAL EUROPE projects

22

Euro cents spent per citizen per year on financing CENTRAL EUROPE projects

1331

Partners involved in CENTRAL EUROPE projects

Cooperating for citizens

CENTRAL EUROPE projects all involve joint efforts by stakeholders from different countries. This approach is designed to improve people's day-to-day lives by addressing problems that do not necessarily recognise national borders. Issues have been tackled at the territorial level where they occur, which is the regions in central Europe. Transnational cooperation allows partners to take advantage of the added value of doing things together, so they can prevent duplication and speed up developments with a higher impact.

More concretely, CENTRAL EUROPE projects:

- Carry out pilot investments and actions
- Leverage additional money and investment
- Come up with new economic strategies and involve local communities
- Increase efficiency on various levels
- Improve spending of public money
- Support the adaptation of EU directives to regional contexts
- Strengthen regional networks and involve local communities
- Influence the policy agenda on all political levels

> "We need to build on the rich and valuable experience gathered through transnational cooperation. There is much evidence that a series of challenges cannot be tackled solely at the level of a single Member State, or even at regional level, but only in a cross-border context."
>
> Johannes Hahn,
> European Commissioner for Regional Policy

Photo: © Dreamstime

Photo: © Monika KyllcowaKrinke

Contributing to Europe 2020

Transnational cooperation driven by the CENTRAL EUROPE Programme is firmly embedded in the strategic policy frameworks on the European, national and regional levels. Many of CENTRAL EUROPE's projects have already been contributing to the Europe 2020 Strategy and its mutually reinforcing goals of smart, inclusive and sustainable growth in Europe. This approach to development is expected to help the EU and Member States deliver high levels of employment, productivity and social cohesion. Concrete actions of the 2020 Strategy are designed to reach ambitious targets in five areas: employment, innovation, education, social inclusion and climate and energy.
The CENTRAL EUROPE Programme, and the transnational cooperation between actors on the ground, plays an important role in meeting these targets on the regional level – even though the programme only used 0.07 percent of the total budget available for EU Cohesion Policy in 2007-2013.

CENTRAL EUROPE 2014-2020

In the programming period 2014-2020 the CENTRAL EUROPE Programme will continue to support regional cooperation among central European countries. Croatia is the latest country to join the programme, which also includes Austria, the Czech Republic, Hungary, Poland, Slovakia and Slovenia, as well as parts of Germany and Italy.

The overall objective of the CENTRAL EUROPE Programme is "to cooperate beyond borders to make central European cities and regions better places to live and work". Put more precisely, transnational cooperation should become the catalyst for implementing smart solutions that answer to regional challenges in the fields of:

- Innovation and knowledge development
- Low carbon cities and regions
- Environmental resources
- Cultural resources
- Transport and mobility

Topics like demographic change will be tackled horizontally. The focus of activities will be on policy-learning and implementation-oriented approaches at the transnational level. More concretely, actions will include the development and implementation of strategies and action plans, the development, testing and implementation of tools, the preparation of larger investment, the implementation of pilot actions – including pilot investments – as well as capacity building measures including training.

More detailed information on the new CENTRAL EUROPE Programme is available online at www.central2020.eu

COOPERATING ON ENVIRONMENT 2007-2013

CENTRAL EUROPE COOPERATING FOR SUCCESS.

EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

CENTRAL EUROPE AT A GLANCE

COUNTRIES, REGIONS/CITIES, AND INHABITANTS COVERED

148 million citizens

80 cities & regions

9 countries

ENVIRONMENT PROJECTS CO-FINANCED

26 environment projects out of 124 in total

1 out of 6 themes

272 partners in environment projects out of 1331 partners in total

DURATION OF PROGRAMME

2007	2008	2009	2010	2011	2012	2013	2014	2015

PUBLIC MONEY WELL INVESTED

BUDGET INVESTED

55 million euros **= 23%** of the total programme budget of **231 million euros**

With roughly **0.05€** **spent per citizen per year,** the programme achieves:

Future investment prepared by projects **0.17** million euros

3.15 million euros Total **investment** carried out by projects

Permanent **cooperation networks** established **9**

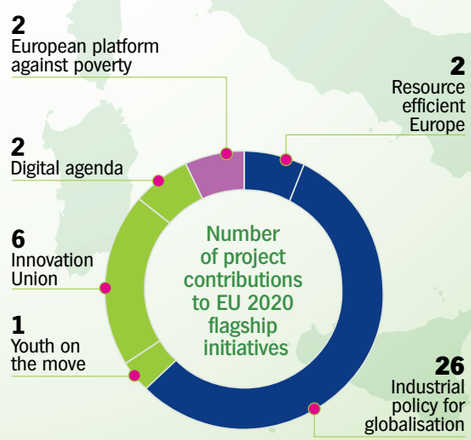
Local **pilot activities** carried out by projects **114**

Jobs created **80**

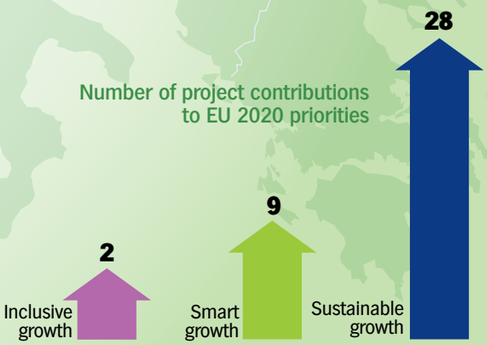
PROJECTS

CONTRIBUTING TO EUROPE 2020

CENTRAL EUROPE contributes to the European Union 2020 Strategy and reaching its goals of smart, inclusive and sustainable growth. Concrete targets for employment, innovation, education, social inclusion as well as climate change and energy were set on the European level and CENTRAL EUROPE project results help to meet them on the local and regional levels.



Number of project contributions to EU 2020 priorities



Data: April 2014

Design: studioQ.at

ANALYSIS

Cooperating across borders to tackle environmental challenges

> The CENTRAL EUROPE Programme has the ability to address climate change and environmental issues that are specific to the programme area and which cannot be addressed with the same effectiveness if different national and regional actors act alone.
>
> The Regional Environmental Center for Central and Eastern Europe, Hungary

Environmental resources have no respect for national borders: Natural habitats and weather patterns often spread across two or more countries. That means that efforts to protect the environment of regions in central Europe, and to help them combat the negative effects of climate change, can be more effective when these efforts extend across borders.

Given its focus on transnational cooperation, the CENTRAL EUROPE Programme is a natural fit for environmental initiatives, according to analysis by The Regional Environmental Center for Central and Eastern Europe (REC). The analysis specifically looked at CENTRAL EUROPE projects that fall under the theme of "Environmental risk management and climate change". CENTRAL EUROPE projects that fall into this theme were found to benefit from their transnational nature, and these initiatives were deemed potentially more effective than similar activities undertaken by individual countries. The analysis also noted that CENTRAL EUROPE projects are particularly strong when it comes to sharing knowledge – an observation that has been made about the programme in general.

The analysis noted a range of environment-related challenges facing central European regions. Better environmental management is needed to address inconsistent waste practices and inconsistent approaches to resource efficiency. Climate change challenges that central Europe faces include increasingly severe flooding, hotter summers, more severe heat waves and water scarcity in southern areas. As for air pollution in this part of Europe, most of it comes from emissions from traffic, industry and agriculture. Challenges to maintaining central Europe's ecosystems and landscapes include threats to biodiversity, loss and degradation of habitats, urban sprawl, land fragmentation and vulnerability to climate change. Soil erosion and contamination are problems in many regions, and there is also a need to revitalise central Europe's brownfield sites.

A range of activities

Within the two subthemes, "Cooperating to prevent environmental hazards and reduce the negative effects of climate change" and "Cooperating to protect and preserve nature and landscapes", the analysis noted that there were several different types of project activities.

- Waste management and resource efficiency: Partners found jointly applicable solutions for a broad range of issues, such as managing transboundary waste collection and shipment, facilitating repair and reuse of goods, improving the recyclability of packaging and ensuring cleaner production.
- Risk prevention and climate change adaptation: CENTRAL EUROPE projects focused on these issues provided technical solutions for extreme weather events, heat island phenomenon, and climate-change-related threats to habitats.
- Water management and flood protection: Flood protection measures aimed at controlling the Danube River and its tributaries, as well as the Elbe River, involved several countries in transnational actions. Water-management projects were found to improve the knowledge of solutions for preservation of rivers and lakes. Other projects related to water management included efforts to revitalise urban riverbanks and to address groundwater pollution.
- Soil protection and land use: Partners jointly developed tools enabling planners to project the impact of soil sealing. Furthermore the projects focused on land use issues, such as managing pollution at brownfield sites.
- Reduction of air pollution: These types of projects mostly focused on urban areas and addressed the health effects of ultrafine particles and pollution from fossil fuels.
- Biodiversity and landscape protection: Projects dealing with these subjects offered protection for transnational ecological corridors, they worked to maintain natural landscapes and habitats that are typical of the region.

Given the success of past projects in this area, the analysis recommends a continuation of the theme of environmental risk management and climate change, as well as continued involvement of experts and researches to guarantee the projects' effectiveness. The analysis added that future projects in this area also need greater participation of decision makers and other stakeholders, in order to guarantee that the benefits of the CENTRAL EUROPE Programme last beyond the life of the projects.

To download the complete analysis visit
http://www.central2013.eu/thematic-studies

Environmental risk management and climate change

Cooperating to prevent environmental hazards and reduce the negative effects of climate change

Cooperating to protect and preserve nature and landscapes

PROJECT STORIES

Photo: © iStockphoto.com / gilas

Making central Europe clean and competitive

Companies in central Europe can greatly reduce any negative environmental impacts created by industry and business if they know how to take advantage of the latest technology. To help ensure that local businesses have the knowledge they need to be more environmentally friendly, the ACT CLEAN project created the first area-wide network for cleaner production.

The ACT CLEAN network works through the cooperation of ACT CLEAN national contact points (NCPs), which have developed stable cooperation structures and permanent services for supporting small- and medium-sized enterprises (SMEs) in using and applying cleaner production technologies and management systems.

Stony path towards EU compliance

Cleaner production is not just a good way to become more efficient while reducing pollution, it is also a legal obligation: EU directives and regulations require enterprises to comply with environmental standards and ensure eco-efficient production processes. Many SMEs lack access to cleaner production technology that has been developed and put to use in other regions. At the same time, those SMEs that can provide customers with cleaner production technology often lack access to the relevant market players. ACT CLEAN addresses these problems by offering SMEs a range of products and services to make their production processes more eco-efficient and to ensure that they comply with relevant EU legislation.

> Through the ACT CLEAN network, our companies were introduced to highly innovative issues and are currently following up on them. The concept of 'eco-design' proved to be especially interesting and resulted in concrete initiatives, such as regular organisation of trainings.

Carlotta Ranieri, CNA Bologna,
National Confederation for the Craft Sector
and Small and Medium Enterprises,
Coordinator Policy, Energy, Environment, Italy

For example, as part of this project, Corvinus University in Hungary adapted one of the tools provided by the Slovak Cleaner Production Center: A database on EU regulations called "Complex". This concept was converted into a simpler database called "Greenlex", which is an interactive tool that allows SMEs to easily check which EU and Hungarian regulations are relevant for them – and to check that they are in compliance with those regulations.

No need to reinvent the wheel

Along with collecting such tools in the ACT CLEAN tool box, the project has also identified and publicised good-practice examples. Much can be learned from a transnational exchange of these good practices, which are called "Cleaner Production Highlights".
In one example, a German company developed an adsorption chiller – solar cooling technology that uses much less electricity compared to standard room air conditioning techniques. Water is used to replace the usual refrigerant, hydrofluorocarbon, which has a high global-warming potential. In the winter time, the device can be operated as a heat pump, to support heating. The result is not only a safer environment but also energy efficiency, which produces immediate savings for SMEs.
ACT CLEAN has collected and assessed examples like this one and built up a shared pool of innovative solutions for SMEs. Around 500 examples have been selected for the project database, and they are also promoted via brochures and other dissemination means.

Matchmaking events provide direct support

The ACT CLEAN network has established a continuing programme of industry workshops and business-to-business training on cleaner production. In the last three years, the main subjects covered by this training work have included resource efficiency, waste management and environmental management systems, but the network can also meet specific requests of SMEs by addressing any important topics pertaining to cleaner production.

Encouraging cleaner production on a regional scale

The project also developed the ACT CLEAN transnational agenda, which is currently being promoted as a way to support policy for fostering, developing and deploying cleaner production. The agenda's action plan focuses on three areas:
- Facilitating networking activities
- Improving awareness of cleaner production solutions
- Improving the financial framework

Each of the action plan's recommendations is addressed to the specific institution responsible for acting on the suggestion.

The way forward

The cooperation mechanism of the ACT CLEAN network is now well established and sufficiently robust to endure beyond the initial project. The project website continues to operate as an interface between various central European countries and enterprises. Recommendations in the action plan should be taken up, to further shape and improve the framework for cleaner production in central Europe. In addition, continued awareness raising is needed to educate SMEs about cleaner production and to promote and market the tools and instruments that have already been developed.

1990

Year in which the term 'cleaner production' was coined by the United Nations Environment Programmes

Project: ACT CLEAN
ERDF funding: € 1 914 082
Duration: 2008 – 2012
Website: www.act-clean.eu

Photo: © Saxon State Ministry of the Interior

Cooperating to improve flood protection

In recent years, record rains and "once-in-100-year" flooding have wreaked havoc on people and economies of central Europe. As individual countries take flood-management precautions, they run the risk of pushing the problem to their neighbours downstream. That is why four central European countries are cooperating to address the needs of their interconnected rivers and flood plains.

The past 10-15 years have seen especially severe flooding in central Europe, and the reaction has included more vigorous efforts aimed at flood control. But recent experience has shown that, even when it comes to rivers that are not shared, flood control projects have an impact on a larger, transnational area. It is now clear that effective flood control can only be achieved through joint transnational cooperation. Well-coordinated master plans for cross-border river basins are thus essential.
CEframe represents the first time that public authorities responsible for flood protection measures in Austria, the Czech Republic, Hungary and Slovakia have worked together on a joint, multilateral project to develop future flood management systems. The project specifically addresses flood control needs for the Danube, Morava, Thaya and Leitha rivers, all of which have basins in more than one country.

A new look at flood risks

The first phase of the project involved determining the current situation of flood protection at the relevant rivers. Existing protection systems and retention areas were recorded and their functions were assessed. Another part of this initial research was to outline those areas that are at risk of flooding.
The next phase involved jointly elaborating management plans for future protection measures against floods. For example, the planners from all the countries worked to coordinate the design and operation of protective equipment and management of retention areas. This joint approach is meant to ensure that no unilateral actions lead to a worsening situation for a neighbouring region.

Involving key actors for better impact

To ensure that the project can have a maximum impact and result in effective action, CEframe involved the water commissions of participating countries from the start. These officials have agreed to one of the major outputs of the project, the CEframe Memorandum of Flood Protection, which defines the necessary measures for future coordination and better floodwater management in all the countries involved. This advanced cooperation requires a high level of transnational communication among all the partner countries. To help make this possible, the project produced a common terminology, as well as a thesaurus in five languages. Another important multi-lingual product of the project is an emergency handbook, which outlines practical steps that need to be taken in case of flooding.

> "The CEframe project provides a valuable contribution that will leave its mark on further intergovernmental cooperation on boundary waters."

Konrad Stania,
Transboundary Water Commission Czech Republic-Austria

600
Kilometres of joint transnational riverside in the project area

680
Millions of euros in damage caused by flooding in Lower Austria in 2002

200
Common terms defined in the CEframe thesaurus on flood management

Photo: © District Fire Brigade Gänserndorf, Austria

Project: CEframe
ERDF funding: €2 075 285
Duration: 2010 – 2013
Website: www.ceframe.eu

Reducing refuse by re-using it

Recycling helps, but one of the best ways to reduce refuse is to re-use it. If behaviours changed, the proportion of waste in central Europe that is repaired and re-used could be increased from the current one percent to around 10 percent. CERREC helps regions support re-use with a range of initiatives that spare natural resources while creating a new product market and increasing employment.

The work of CERREC is both important and timely, especially because a recent European Union directive encourages re-use of commodities. In the past, consumers had to decide for themselves whether they were going to buy a quality product that can be repaired and used for a long time, or a cheap "throwaway" product. There were no particular incentives for manufacturers to produce goods that would last longer, and making low-cost goods that would be thrown away shortly after purchase was often more profitable. In this kind of market, re-use of goods was rare, and was only practiced by a small minority: People involved in charities, people who wanted to save money, or people looking to protect the environment.

New Waste Framework Directive

Things have changed now. The new Waste Framework Directive (WFD) provides public authorities with incentives and obligations to implement re-use activities. It encourages the development of "accredited re-use and repair centres or networks" and makes "preparation for re-use" a legitimate category for meeting new EU quotas on recycling and re-use.

Photo: © Leona Sinkova

> "Thanks to the CERREC project, a platform for re-use and related topics has been realised. The project maps the regional conditions and procedures in the field that the department would not normally be able to provide. Therefore the project has considerable information potential."

Jan Pavlíček,
Waste Department of the Ministry of the Environment,
the Czech Republic

Helping regions comply with EU legislation

CERREC helps authorities to implement the WFD by providing tools, knowledge and a transnational re-use exchange platform that makes it possible to implement the kind of regional re-use and repair centres and networks foreseen in the directive. Thanks to CERREC's support, national and regional authorities do not need to start from scratch in encouraging re-use. The project ensures that the development of re-use networks closely involves relevant experts on the regional, national and transnational level.
The project produces tools specifically tailored to the unique needs of central European countries that are trying to establish re-use networks and centres. The project's partners are continuously developing and implementing these tools, including quality standard guidelines and handbooks describing an accreditation system. By establishing a transnational exchange platform for repair and re-use, CERREC ensures that its tools will be used long after the life of the project.
A major challenge to implementing the project is the need for effective knowledge exchange. The re-use sector is still developing, and many companies that have the potential to be successful in the field lack the necessary know-how. That is why CERREC developed a good practice database that shows off the potential of re-use initiatives within the EU. The project also established several pilot initiatives that not only offer insight into implementation of the re-use process but also help to define barriers and factors for success. Special emphasis is put on areas like communication, allocation of roles and responsibilities between participating actors in re-use networks, and building customer acceptance and trust.

20
Best practice examples of re-use collected in the CERREC good practice database

13
Times as many job opportunities created in the re-use sector as compared to recycling

68
Percentage of EU citizens willing to buy second-hand products

Photo: © CERREC

Project: CERREC
ERDF funding: €2 269 713
Duration: 2011 – 2014
Website: www.cerrec.eu

Photo: © Vera Firmilova

Reusing land to preserve the environment

Central Europe is suffering negative impacts from rapid urban sprawl. While virgin land is gobbled up for development, old building sites are abandoned and left to deteriorate. A new approach promoted by CircUse involves reuse of previously developed land and preservation of nature. Such forward-thinking planning benefits the environment and reduces the costs of expanding infrastructure networks.

Preserving vital natural spaces requires a long-term approach to planning that anticipates changes in such factors as demographics and climate. Circular Flow Land Use Management (CircUse) seeks to anticipate and limit the environmental impact of development through planning that reuses previously developed land. The CircUse philosophy of "avoid, reuse, compensate" relies on three related directions for action:

- Tighter zoning regulations must be established to reduce "greenfield" development, which is development on previously unused land.
- Land that is not suitable for reuse must be rejected for development.
- The potential of existing developed land must be activated by encouraging the use of "brownfields" (land that has already been used and is now abandoned or underused), development in gaps between existing buildings, and last but not least by urban renewal.

Regional cooperation

The CircUse approach looks at development within regions in Poland, Austria, Italy, Slovakia, the Czech Republic and Germany. Each participating region is undertaking a pilot project to develop an action plan for implementing circular flow land-use management, so they can consolidate city centres, redevelop brownfields, develop vacant building lots and preserve open spaces in their area. This process allows diverse regions to set a development course that will meet their unique needs. In each region, the process involves different groups of people, and creative solutions are required to ensure maximum participation of public and private stakeholders.

Involving everyone

In its effort to involve everyone in ensuring better land use, the CircUse project has a variety of outputs that benefit different stakeholders. For instance, the project developed a pilot course for experts, so professionals can learn about this innovative approach to sustainable land management. Decision makers have the opportunity to take advantage of a data management tool that helps them to realise the development potential of land that was previously built upon. Action plans produced by the project allow the partner regions to plot a course for their future land-use process. A position paper gives insight into the new policy directions needed to support circular flow land-use management. The project even developed materials for secondary school students, so they can learn about the concept of sustainable land use. A final output of the project is the "CircUse Compendium", a handbook detailing the results of the initiative in a format experts can use.

Setting a precedent

The results of CircUse provide key lessons for other regions hoping to apply this new approach. The project sets a precedent for implementing sustainable land use structures and encourages cooperation in the years to come. Citizens and officials will benefit from efforts that revitalise urban structures and physical properties to bring new amenities and services to central European municipalities and regions.

> "Our participation in the project allows the local residents to discuss issues common to all of Europe: The restoration of brownfield sites and the revitalisation of derelict lands."

Davide Arri,
Vice Mayor of the Municipality of Asti, Italy

1 000

Estimated number of square kilometres covered by artificial surfaces in Europe

6

CircUse pilot actions to implement sustainable land management

6

Action plans developed by CircUse to redefine stakeholder cooperation

Photo: © CircUse project

Project: CircUse
ERDF funding: € 1 923 729
Duration: 2010 – 2013
Website: www.circuse.eu

Nurturing professional brownfield managers

Regeneration of brownfield sites – underused former industrial or commercial property – is often a long-term and complex process involving a wide range of professional disciplines. Europe needs brownfield regeneration managers with the coordination and communication skills required to deliver the best plans and steer the revitalisation process. The COBRAMAN project helps by developing the profession of brownfield regeneration manager, and by training these managers.

All over Europe, revitalisation of brownfield sites plays an important role in combating urban sprawl and improving the quality of the urban environment – thereby facilitating sustainable development. Brownfield land often endangers public health and creates environmental risks. Moreover, if left undeveloped, brownfield sites can create social and spatial segregation, threatening the competitiveness of European cities. Rehabilitation of brownfield sites will be of growing importance in central Europe, and the work will require large investments. Alongside any EU subsidies for brownfield regeneration, it is important to provide the necessary knowledge to undertake such investments – through a transfer of know-how from western to eastern countries, as well as a transfer from research to practice.

Professional management key to success

One of the most important lessons learnt from previous European activities in brownfield regeneration is that professional management is a key factor for success of the process. This is why the COBRAMAN project sought to introduce the profession of brownfield regeneration manager.

Photo: © Dreamstime

> “As urban planners, we acquired knowledge from the COBRAMAN project about brownfield regeneration and now we are implementing it in our daily work.”
>
> Liljana Janković Grobelšek,
> Architect and Urban Planner, Acer d.o.o., Novo mesto, Slovenia

Establishing qualified brownfield regeneration managers within European cities will enable effective and successful renewal and conversion processes. Training for practitioners was conducted through a series of courses, all built around the practical requirements of local pilot projects that were already underway. The partners shared best practices, defined methods that have proven effective, applied these methods in practical cases, and now offer this information for others seeking training.

Setting educational standards

Specific professional or educational standards do not yet exist for brownfield regeneration managers. But courses are evolving, from faculties teaching planning and environmental/civil engineering, as well as from those offering training in real estate. The creation of training and educational schemes benefits from transnational cooperation between experienced academics as well as practitioners from the partner cities and their service providers. A master course, postgraduate courses and further e-learning courses have been set up to support students, as well as staff who are already working in the field.

30
Brownfield managers trained and awarded with certificates

150
Years of industrial use of the area near the Brda River in Bydgoszcz (Poland) before it was remediated for leisure activities

3
Educational schemes defined for brownfield regeneration

Photo: © City of Bydgoszcz

Project: COBRAMAN
ERDF funding: €2 945 103
Duration: 2008 – 2012
Website: www.cobraman-ce.eu

Enhancing the quality of paper for recycling

Photo: © VDP

Recycling paper saves water and energy, and it reduces waste. Recovered paper is a major resource in central Europe, but different countries collect with different effectiveness. ECOPAPERLOOP looks into paper and packaging: It encourages a more efficient transnational approach – by developing assessment methods and better product designs, by encouraging innovation and by increasing awareness.

The ECOPAPERLOOP project wants to improve paper recycling: Paper is not always recycled where it has been collected. So to allow more efficient collection processes on one hand, and to achieve better raw material on the other hand, all actors need to cooperate more intensely. What does a communal authority know about the further processing of the paper collected? Part of the work of the ECOPAPERLOOP project involves obtaining data about collection systems in various regions. This information is combined with feedback from paper mills about the utilisation of paper for recycling in the mills, their satisfaction with the quality – and their suggestions on how to improve the situation. All this will be incorporated in recommendations, which are tested in a model region and communicated to the partners in the paper value chain in the respective regions. Most of all ECOPAPERLOOP is about raising awareness – helping all the partners in the paper chain understand how they can contribute to enhancing the quality of paper for recycling.

The problem of non-paper components and adhesives

Every kind of packaging looks different. But can they all be recycled alike? What makes a paper product sustainable? Are there ways to package goods that are better for recycling than others? Identifying suggestions for the perfect ecodesign of packaging is another goal of ECOPAPERLOOP. Adhesives play an important role: Certain kinds of glue applications can virtually disappear in the beginning of the recycling process, only to reappear in the final stage to cause problems. Ideally after the paper or cardboard product is dissolved in water, the adhesives used form cohesive pieces that can be screened off while the diluted fibre soup passes through a screen. But some adhesives dissolve as well, accompanying the fibres on their way to the paper machine. Here the recycled fibers are dried to form new paper or cardboard – and with the water evaporating, the adhesive returns, forming sticky particles that sit on the paper screen, occupying the place where recycled fibres should be, and leading to defects in the final product.
For packaging, ECOPAPERLOOP partner PMV in Darmstadt has developed a new recyclability evaluation method and currently jointly practices this method with the partners. Labs in all partner countries dissolve packaging samples, extract the adhesives, visualize them on blackened filter paper and evaluate them by optical image analysis. With the data collected from many samples, a scorecard will be developed that helps to assess the recyclability of packaging products.

A life cycle analysis to spur ecodesign

Another way to look deeper into the sustainability of a product is to compare scenarios by performing a life cycle analysis (LCA). Paper researchers from COBRO in Poland and Innovhub-SSI in Italy work together to look into the environmental impact of possible product ecodesign improvements, especially with respect to the recycling process.

> The science-based assessment of the recyclability of paper-based packaging that ECOPAPERLOOP develops can be adopted by the ERPC, a wide set of stakeholders on the EU level, and serve as a reference for EU legislation and standards such as EU ecolabels.
>
> Jori Ringman-Beck, Director Recycling, Product, Environment CEPI, Member of the European Recovered Paper Council (ERPC) Confederation of European Paper Industries, Brussels

71.7
Percentage of paper and cardboard that was recycled in Europe in 2012

3.5
Average number of times each paper fibre has been recycled in Europe in 2012

160
Packaging products tested by the ECOPAPERLOOP project for their recyclability

Photo: © Axel Fischer

Project: ECOPAPERLOOP
ERDF funding: € 1 781 259
Duration: 2012 – 2014
Website: www.ecopaperloop.eu

Protecting lakes as the climate changes

Scientists are aware that the constantly worsening pressures of climate change and other side effects of human activity are threatening Europe's lakes. Decision makers responsible for managing lakes should also be aware of these threats, so they can seek possible solutions. Through EULAKES, scientists and authorities cooperate on efforts to prepare for the impacts of climate change on lakes.

To ensure that the people managing Europe's lakes are well informed and prepared to face future challenges, the EULAKES project includes scientists in its effort to develop the best strategies for mitigation of, and adaptation to, climate change. This unique collaboration is meant to produce a joint transnational strategy for basin-wide lake management that addresses environmental, economic and socio-cultural concerns. Ideally, the strategy would be encoded in an international agreement signed by each partner's area representative, to establish the guidelines for a joint initiative and planning process.

Along with climate change, European lake managers face several common problems, including pollution, the need for sustainable management of shorelines and other areas and planning for diverse activities. This project addresses such concerns at four different lakes: Balaton in Hungary, Charzykowskie in Poland, Garda in Italy and Neusiedl in Austria.

Research and activities at the lakes

The research undertaken at these lakes requires an evaluation of their health, including a study of the monitoring systems that exist and development of new monitoring systems. It was also necessary to improve knowledge about the environmental weaknesses of the lakes and about risks connected to these weaknesses – and to conduct different surveys to study the specific impacts of climate change effects on the lakes.

The project focused on enhancing the role of local governance of the lakes, so that local communities would become involved in the transnational approach. The surveys involve four different pilot actions, one at each lake:

- Balaton: A study looks at the presence of invasive species, like sinanodont woodiana and carassius gibbelo, focusing on their ecological impacts. These and other alien species are expected to be dominant in the future, putting the lake's ecosystem at risk and endangering native fish species.
- Charzykowskie: The presence of pesticides and heavy metals were evaluated. Core samples show a content of nitrogen, phosphorus, pesticides and heavy metals that could speed eutrophication of the lake.
- Garda: A study looks at the risks associated with the presence of cyanotoxins in the water. These substances can be dangerous to animals and humans. One significant finding is the discovery of microcysts in the muscles of the fish Coregonus lavaretus.
- Neusiedl: A study investigates grazing management and agricultural practices to control nutrients in lake waters. A new land-use plan is proposed to review utilisation of surrounding lands and create a buffer zone between the shore and agricultural areas.

This project is unusual in that it takes advantage of the synergy among researchers, local authorities and territorial management bodies in addressing the needs of European lakes. The project also offers European comparisons, so that the scientific results and best practices that are identified by EULAKES will have international value.

Photo: © Comunità del Garda

> "Thanks to the EULAKES project, climate change challenges are now one of the most important issues for the community living along the lakes, and local communities are now considering very seriously the actions they have to take."
>
> Giorgio Passionelli,
> Mayor of Torri del Benaco, Lake Garda, Italy

4
Large European lakes involved in the project

3
Innovative techniques for monitoring the health conditions of the lakes' water ecosystems

2100
The last year covered by climate change predictions

Photo: © Comunità del Garda

Project: EULAKES
ERDF funding: €2 208 772
Duration: 2010 – 2013
Website: www.eulakes.eu

Tackling groundwater pollution at its source

As in many central European cities, industrial pollution has a severe negative impact on groundwater in Jaworzno (Poland), Novy Bydzow (Czech Republic), Stuttgart (Germany), and Milan and Treviso (Italy). FOKS established groundwater risk management and remediation plans for these cities, and provided authorities with a tool box and list of good practices to help them apply new solutions.

Because many sources often contribute to large pollution plumes that follow the flow of groundwater, water authorities addressing problems caused by past and current industrial activity face a challenge in implementing the "polluter pays" principle for clean-up activities. If those authorities can identify key sources – which are the few sites releasing most of the contaminant load in these old industrial areas – it is possible to simplify clarification of liabilities and decision making processes and to enable well-targeted, cost-effective remedial actions.
Novel field measurement and interpretation technologies allowed for aereal characterisation of groundwater quality. Contaminant loads were assessed in different places, making it possible to pinpoint hot spots of contamination in the areas under study. Hydrogeologists and chemists were able to prove that extended pollution plumes were originating from these hot spots. The application of new technology in different hydrogeological settings with differing contamination patterns provided valuable input for the FOKS toolbox. The results of these pollution measurements offer guidance for technical experts who wish to apply such novel technologies in the future.

Risk management and remediation

Once the key sources of pollution were identified, experts working with FOKS designed targeted remedial actions that involved assessing and testing innovative technology. The remedial actions are embedded in local water authorities' groundwater risk management concepts, which are based on the principles of the newly established European Groundwater Directive. Experience gained through undertaking remedial actions provides good practice examples for those beginning the process of coordinating national implementation of this directive.

Securing maximum benefit of the results

Authorities are now in the process of applying for approval and funding from operational programmes and national funds for their site-specific remediation plans, which were developed through the knowledge gained from FOKS. Overall, the results of the FOKS project were helpful to a range of stakeholders:

- Water authorities benefit from an introduction to innovative remedies and assistance in developing groundwater risk management concepts that support decision making
- Groundwater experts benefit from the technical guidance documents that are generated
- Polluters benefit from remediation activities
- Citizens benefit from improved groundwater resources

Information gathered from the project was shared through training seminars and public conferences. Among others, 110 Italian experts participated in a seminar on remediation actions in Treviso, Italy, and a conference on "Innovative Solutions for Revitalisation of Degraded Areas" in Ustroń, Poland, involved more than 100 scientists and practitioners from around Europe in a special session on the FOKS project.

> "The FOKS project pointed out the high risk for groundwater pollution and provided appropriate financial and technical solutions to deal with the contamination problem."

Jerzy Buzek,
Member of the European Parliament, Poland

645
Hectares of land investigated as project pilot sites

101
Million litres of groundwater pumped during investigation campaigns in Jaworzno, Stuttgart, Milan and Treviso

1 350
Groundwater experts participating in public events of the project

Project: FOKS
ERDF funding: €2 581 851
Duration: 2008 – 2012
Website: www.central2013.eu

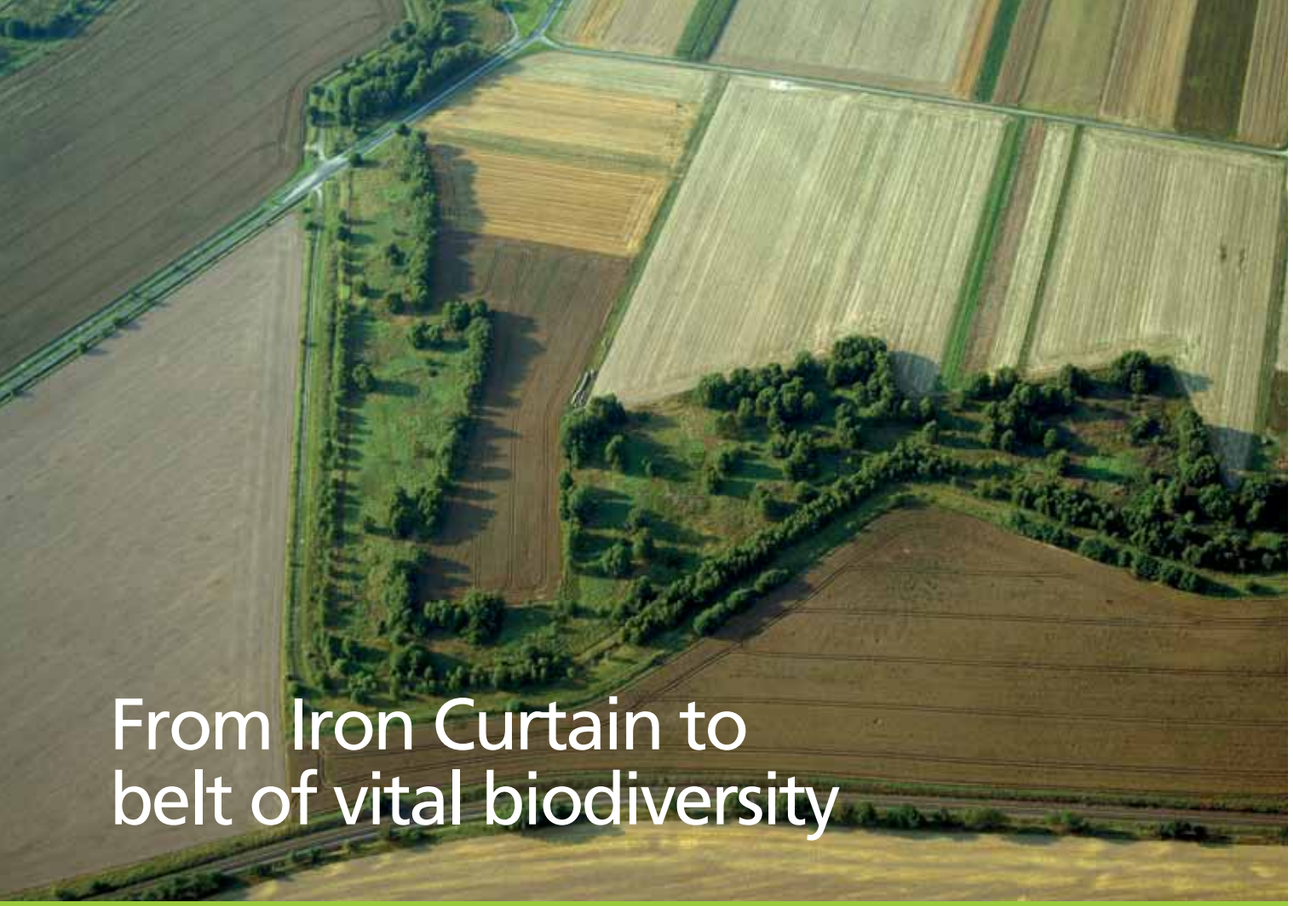


Photo: © GreenNet_Klaus Leidorf

From Iron Curtain to belt of vital biodiversity

During much of the last century, Europe was divided by the Iron Curtain. The former border areas now constitute a Green Belt of valuable landscapes and ecosystems in eight central European Member States. GreenNet supports development of a joint, transnational strategy to ensure that the Green Belt is well managed in protected areas but also in not protected but valuable parts.

The aim of the GreenNet project is to secure long-term protection of the largest transnational network of ecosystems in Europe: The European Green Belt along the former east-west border of the Iron Curtain. The project also pursues strategies for long-lasting, sustainable rural development in the regions adjacent to the Green Belt. To do this, partners developed a common transnational methodology to define goals and landscape quality objectives for six pilot regions in five countries. The project identified spatial gaps in protected and non-protected areas and promotes strategies to preserve the entire Green Belt.

Closing the gaps

A key early step in achieving sustainable development in the central European Green Belt was to identify spatial conflicts and to harmonise land claims of different stakeholders. It was especially important to deal with the gaps in the Green Belt by addressing the problem of non-protected areas with high ecological value. These areas are vital stepping stones for rare and endangered species in the ecological network of the Green Belt.
To address conflicting land-use claims, the project developed a GreenNet GIS web tool, which provides economical, spatial and ecological data. The project's researchers identified regional stakeholders and their key interests in order to highlight potential conflicts, and the GIS tool precisely pinpointed the areas with conflicts. The tool can be used by anyone in the field of agriculture, forestry, decision-making, spatial planning, water management, nature conservation, etc. Through this work, GreenNet provides an overview of potential spatial conflicts, making it possible to close gaps in the Green Belt.

Developing suitable regional strategies

While identifying the land to protect, the project also seeks to develop regional and transnational strategies to protect it. Along with being transnational by nature, the European Green Belt also has many special habitats and species that cross borders. Examples include the wetlands and dragonflies along the Mura River and Goričko between Slovenia and Austria, and large carnivores in Český les/Oberpfälzer Wald between the Czech Republic and Germany. Developing conservation strategies in these places required intensive transboundary cooperation. The project brought together cross-border stakeholders – including municipalities, farmers, land owners, spatial planners, water management authorities and nature conservationists – to develop and implement joint management strategies.
The GreenNet project also undertook and encouraged awareness-raising and lobbying activities to promote the importance of barrier-free ecological corridors in the Green Belt. This work includes advocating policy changes on the regional, national and international level.
The Green Infrastructure Strategy of the European Commission already mentions the work to preserve the Green Belt as an example to follow. Developing an appropriate strategy in these border areas can provide the backbone for a pan-European ecological network and a European green infrastructure.

> The Green Belt crosses borders and connects nature and people. The project is an excellent example of how Member States, NGOs and other stakeholders can work together effectively along the European Green Belt, united by a common project.
>
> Janez Potočnik,
> European Commissioner for the Environment

40
National parks along the European Green Belt

44
Percentage of the central European Green Belt that is not protected by legislative status

12 500
Kilometres of European Green Belt running from the Barents Sea to the Black Sea, touching 24 countries

Photo: © Stanka Dešnik

Project: GreenNet
ERDF funding: € 1 498 538
Duration: 2011 – 2014
Website: www.greennet-project.eu

Saving protected habitats from climate change

Photo: © Magda Jakab

Climate change has severe negative impacts on valuable natural conservation sites – where we can see wetlands drying out, sea levels rising and invasive species taking over – and these impacts are expected to worsen. HABIT-CHANGE improves conservation management by gauging current and projected effects of climate change in hotspots of biodiversity and seeking strategies to adapt to this threat.

The HABIT-CHANGE project helps us gain a clearer understanding of the effects climate change is likely to have on the most sensitive habitats within national parks and biosphere reserves, while also creating strategies for addressing those impacts. The project brings together conservation managers, conservation agencies and research institutions from all over central Europe. This unique partnership of scientists and practitioners works together to analyse the local effects of climate change and the responses of natural habitats and ecosystems.
Under HABIT-CHANGE a network of meteorological stations was installed in protected areas around central Europe. The project also applies up-to-date technologies for satellite observation and monitoring in the field. This provides the scientific background and reliable data to detect changes in nature and current challenges for the conservation of biodiversity.

Models project future change

Along with identifying current trends in climate change and land use, the project also analysed the potential impacts of future climate change. Models to project regional changes in climate and the local impacts are used to forecast potential effects on specific habitats up to the year 2050, and beyond. The project's researchers conducted intensive discussions with local experts to validate the assessments of their models and make sure that these assessments accurately consider local characteristics. The resulting projections are presented in maps showing habitat sensitivity and potential future changes. The project also provides guidance to identify adequate local adaptation strategies, in order to ensure that results from climate impact assessments will be reflected in future management decisions.

Sharing the knowledge

The need to anticipate and adapt for the impacts of climate change is not only vital for conservation managers. The issue will affect a wide array of stakeholders and land users, like farmers, foresters, fishers and those involved in tourism enterprises. That is why HABIT-CHANGE emphasises effective awareness-raising and stakeholder involvement. Current and future problems are discussed with the local public through workshops, field trips and direct contact. Park rangers and administrative staff are trained to communicate climate change issues and explain adequate adaptation strategies, while exhibitions and presentations at local fairs are used to inform park visitors and the wider public about the issue.
The lessons learned from the cooperation between local administrators and scientists within HABIT-CHANGE have been documented in the form of recommendations and guidelines so that they can be used by other conservation managers seeking to prepare strategies for the environmental consequences of climate change. These managers can also take advantage of HABIT-CHANGE's web-based decision-support tool, which also contains knowledge gleaned from executing the project.

> "I find HABIT-CHANGE an attractive project for the Danube delta, as it intends to raise public awareness among the inhabitants here. I can see around me that people have started to understand what effects climate change has on their daily lives."
>
> Adnana Mihaela Patrascoiu,
> Director Scoala cu clasele I-VIII
> Sfintu Gheorghe/Tulcea, Romania

18
Percentage of land in the EU within protected Natura 2000 areas

89
Habitat types of European importance (Natura 2000) occurring within the investigation areas and analysed within the HABIT-CHANGE project

2050
How far ahead the project's forecasts run

Photo: © Marco Neubert

Project: HABIT-CHANGE
ERDF funding: €2 812 784
Duration: 2010 – 2013
Website: www.habit-change.eu

Predicting flash floods to reduce their risk

Photo: © iStockphoto.com / Davor Lovincic

Because most flood prevention projects in central Europe focus on large rivers, we still know too little about averting calamities in smaller basins. This gap in knowledge needs to be closed, especially with climate change creating more extreme weather swings that make severe environmental threats more common. INARMA addresses this challenge through a transnational effort.

Strategies for minimising the impact of flooding on major floodplains have improved, but many smaller basins are not governed by any kind of specific flood-prevention provisions. This means large swathes of the population are left unprotected against "flash floods", those sudden inundations that are occurring more frequently in central Europe, sometimes bringing tragic consequences. In a modern, efficient and environmentally conscious flood management strategy, this lack of preparation needs to be remedied. The solutions offered by the INARMA project include technology for mapping the impacts of future floods.

Gathering data on smaller river basins

INARMA brings together representatives from Austria, Germany, Hungary, Italy and Poland. In each of these countries, project participants focused on a region with a smaller river basin – generally a tributary to a larger river – for which there are either no flood prevention measures or insufficient measures. Partners collected a great deal of information on these basins: Past floods, vulnerable areas, water management regulations in force, etc. Using this data, digital forecasting models were developed to create graphic characterisations of the areas prone to inundation, so that these areas can be represented in a software environment.

A new tool for flood projection

Based on the digital models they had put together, partners created the INARMA GIS, a safety-driven, easy-to-use and reliable flood forecasting and visualisation tool – built with a geographic information system (GIS). This tool is made available to local administrations, rescue and relief units, civil defence professionals and volunteers – and anyone else who may be involved in flood risk management. The added value is that the INARMA GIS is specifically tailored for events generated on a small time-and-space scale, so it can hone in on the risk of flash floods.
The INARMA GIS not only allows the creation of flood risk maps, it also provides instructions on how to use the information contained in the maps. The maps show the potential dangers associated with a flood impacting on a given area, while making it possible to visualise the flood trend in specific points around the area.

INARMA GIS tested successfully

The project's GIS tool has already been tested under realistic conditions in two civil defence emergency simulations – in Poland, along a tributary to the river Vistula, and in the Province of Alessandria, Italy. The results of these exercises were presented in other regions who want to know more about using the INARMA GIS.
Using all the results of the INARMA project, local communities, governments and land protection institutions have powerful new weapons to add to their arsenal in the fight to control unexpected floods.

> "Our town has been under threat of floods for too long. I am confident that the innovative tools and practices delivered by the INARMA project will provide a safer environment for my fellow citizens."

Maria Rita Rossa,
Mayor of Alessandria, Italy

4 200
Kilometres of dikes along the rivers of Hungary

22
Decentralised operational units created for emergency management in the Province of Alessandria

2
Emergency simulations organised to test the INARMA GIS software

Photo: © Saxon State Ministry of the Interior

Project: INARMA
ERDF funding: € 738 454
Duration: 2010 – 2012
Website: www.inarma.eu

Reducing the risks of extreme weather

Photo: © NLK Reinberger

Every year, extreme weather events in central Europe pose challenges for civil protection authorities, hydrologists and road maintenance services – all of whom need more timely warnings of potential problems. By deepening transnational cooperation between meteorologists and concerned public agencies, INCA-CE improves our preparedness for severe weather emergencies.

The INCA-CE project makes important connections between weather science and governance by joining meteorological forecasts and warnings with practical applications designed to manage civil protection, hydrology and road safety in various locations in central Europe. The Integrated Nowcasting through Comprehensive Analysis (INCA) weather model processes measurement data to show current conditions and to create projections of upcoming weather patterns. The project website allows the general public to see a basic example of the kind of visualisation the model can provide.

Because it has a range of users from different fields, the project's work encourages meteorological products that are more user-friendly. And because it involves several countries, the project is also helping to develop a standardised information exchange across borders – for better international cooperation in weather emergencies. INCA-CE is currently the only project in the world that provides for this kind of extensive cross-discipline and cross-border cooperation on extreme weather-related issues. Thanks to its unique nature, the project has already earned international recognition and drawn interest from countries around the world.

> With the INCA-CE project we are able to use state-of-the-art weather forecasts and thus improve our winter road maintenance and road safety on Slovenian motorways.
>
> Marko Korošec,
> Supervisor of the Road Weather Information System (RWIS) of Slovenia's main motorway company DARS, Slovenia

Improved warning chains

The INCA weather model is now running in all countries participating in the project, and it has improved the ability to prepare for extreme weather. In order to ensure that the model is continuously refined to better meet the needs of the three application areas – civil protection, hydrology and road safety – it includes a feedback loop between developers and end-users. The input from diverse users makes it possible to refine the model more extensively than any single institution could.
The system's ability to assist in crisis management and risk prevention is also facilitated by the transnational cooperation involved in the project. Because information flows internationally, the model is well-suited to serving border regions and can improve timely actions by a range of authorities, in different countries and different fields, to prepare for a dangerous weather event. These benefits have been shown through multiple pilot studies.

INCA-CE is internationally renowned

The valuable potential of INCA-CE was recognised by the World Meteorological Organization (WMO), which chose the project as a "World Weather Research Programme/Forecast Demonstration Project". With the support of WMO, the INCA model is to be adopted in various countries around the world, allowing for an exchange of know-how, expertise and experiences. New cooperation with developing countries is expected to help ensure low-cost local research and development. In total, the model is already being used and investigated by 24 partners coming from Austria, the Czech Republic, Germany, Hungary, Italy, Poland, Slovakia and Slovenia, and also by partners coming from Belgium, China, Croatia, Israel, Switzerland and Turkey.

10
Minutes of time in which extreme weather causes significant damage

8
Detailed pilot actions of INCA-CE allow extensive feedback

1 449
Visitors accessed the web portal's high resolution meteorology data in summer and autumn of 2012

Photo: © iStockphoto.com / Michael Krinke

Project: INCA-CE
ERDF funding: €2 470 453
Duration: 2010 – 2013
Website: www.inca-ce.eu

Photo: © Saxon State Ministry of the Interior

Joining forces to fight floods

Central Europe received a terrible wake-up call in August 2002, when record floods that swept through eight countries took dozens of lives and caused billions of euros in damage. A decade later, the area's authorities are better prepared for a similar catastrophe – thanks to international cooperation driven by the principle that flooding knows no borders. LABEL allows that cooperation to continue.

To prevent floods around the Elbe River, several countries and regions agreed to joint planning actions under the EU-funded ELLA project (2003-2006). The spatial planning bodies and water authorities in these countries also developed maps of flood hazard spots and a basic action plan for this major central European river. The initiative continues under LABEL, a project that brings together key partners from Germany, the Czech Republic, Austria and Hungary.
The 20 partners in the LABEL project are working to develop the first joint strategy to address flood prevention and adaptation to flood risks throughout the entire Elbe river basin.

The approach of this transnational project includes local risk assessments, joint maps, a risk management system and measures for raising awareness to flood risks. The project also presented a joint plan for catchment-wide implementation of the EU Flood Risk Management Directive. This plan will be considered by the International Commission for the Protection of the Elbe (ICPE), which will feed the project's work and results into implementation of its own flood-protection strategy.
Along with addressing flood protection, LABEL focuses on balancing conflicting water-utilisation needs for such activities as risk prevention, tourism, recreation, transportation and development of settlements along the river. The Elbe and its tributaries are important recreational areas, which means that cycling infrastructure and water tourism facilities need more and more land along the river bank. Meanwhile, the Elbe is also a transnational transport route (TEN-T), part of an intermodal transportation system, so it is lined with roads and other transport infrastructure. Further development on the riverbanks includes homes and businesses, as more people choose to live by the river. Settlements are growing in flood-prone areas, and this construction often conflicts with risk prevention. To ensure truly reliable flood protection, flood plains should be kept entirely free.

Coordinating competing demands

The competing uses and demands for space along the Elbe River require farsighted coordination. One way of achieving this is through good spatial planning measures. The project helped develop pilot actions to coordinate the competing demands, and this work has been included in developing a comprehensive strategy for the Elbe River catchment area.

> The flood we saw in Görlitz in 2010 caused enormous damage. In handling the situation, one of our main resources came from the LABEL project, which had produced maps and interactive software that helped us to inform our citizens about the situation faster and more efficiently.
>
> Uwe Restetzki,
> Head of Görlitz Fire Brigade, Saxony, Germany

7
Stops of the LABEL moving exhibition in 2012

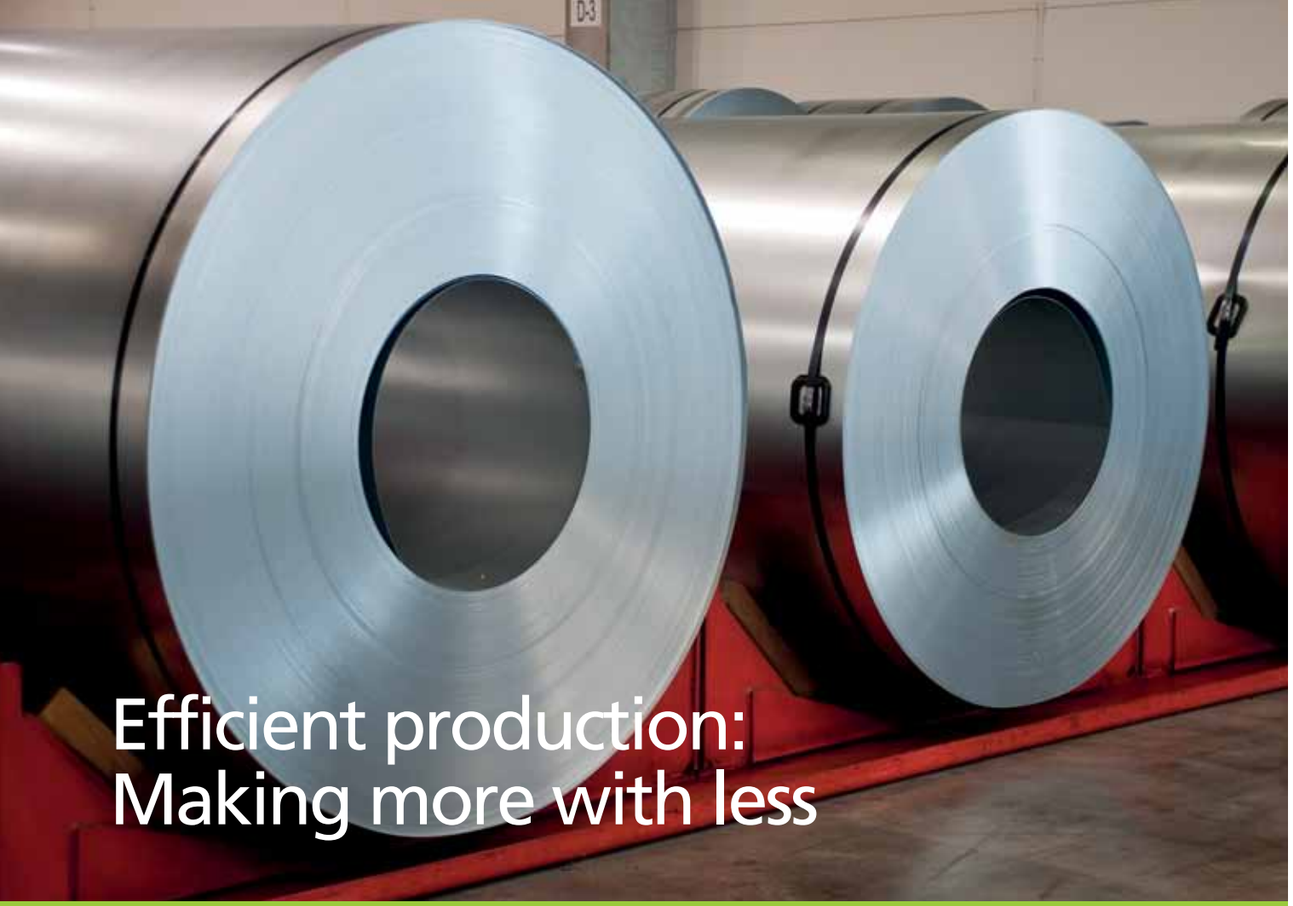
10
Years of transnational cooperation on flood risk management along the Elbe River

12
Days it takes on average for water to run down the Elbe River from source to estuary

1 094
Length of the Elbe River in kilometres

Photo: © Saxon State Ministry of the Interior

Project: LABEL
ERDF funding: € 3 169 007
Duration: 2008 – 2012
Website: www.label-eu.eu



Efficient production: Making more with less

For companies in the production sector, materials cost more than wages. Yet, material resources are not always used efficiently, especially by small and medium-sized enterprises (SMEs), which may not be aware of possible savings. PRESOURCE helps SMEs become more profitable by exploiting their full resource-efficiency potential through the promotion of transnational incentives for eco-innovation.

Despite the large amount that they spend on raw materials, industrial SMEs have little awareness of the potential for improving the efficient use of resources through such activities as optimising management procedures, improving logistics, developing better product design, and making production processes more efficient. Such firms often lack the know-how and personnel to recognise inefficient procedures and processes that are undertaken as part of the daily routine of business.
PRESOURCE aims to help SMEs become more resource-efficient and thereby more competitive. The project supports SMEs in evaluating their work from a different perspective, and provides them with a tool that was developed by the project to improve material and resource efficiency.
To increase the impact of its work, PRESOURCE also fosters capacity development at the level of authorities and intermediates in six central European countries. The "Eco-innovation Development and Implementation Tool" developed by the project, which is known as the "EDIT value tool" allows for a holistic analytical approach to unveil resource efficiency potential in industrial companies. In contrast to most existing tools, it not only looks at products or processes, but also analyses the potential for savings through improved business strategy, management procedures and realisation of stakeholder interests. Rather than imposing the logic of one specific tool on enterprises, the EDIT Value tool is designed on the basis of the needs of the SMEs it serves. It helps each company discover its own potential for efficiency.
In the experience of project partners, many efficiency measures that can reduce costs require little or no investment. In other cases, companies can best realise efficiency by sourcing extra financing, which can be hard for SMEs to obtain. That is why PRESOURCE maps stakeholders and financing institutions that can help support the costs of efficiency measures. The project also provides a cost-benefit analysis scheme to help communicate the positive outcomes of such measures to both SMEs and financing institutions.

Photo: © iStockphoto.com / Matos Markovic

> "The PRESOURCE workshop discussions confirmed for me once more the importance of a standardised approach for improving resource efficiency in SMEs."

Wilfried Denz, Environmental Consultant,
Chairman of the VDI Standard Committee 4598
- Resource Efficiency in SME, Germany

European Commission seeking resource efficiency

Although the issue of resource efficiency has not received much attention in central Europe, Member States are being urged by the European Commission to address the matter. The EC has called for action in its "EU 2020 Resource Efficiency Flagship Initiative" and its "Roadmap for a Resource efficient Europe". Countries of central Europe can therefore benefit from exchanging knowledge on this issue. PRESOURCE supports this knowledge exchange with its online Competence Platform, which brings together stakeholders and promotes exchange and discussion of activities, tools and general information. The platform is complemented with a series of workshops in central Europe, where participants discuss policies and initiatives to support SME resource efficiency.

1
EU flagship initiative puts the spotlight on resource efficiency in Europe

16
Tons of material are annually consumed by each person in the EU

100
Stakeholders in the financial sector – from banks to crowd-sourcing funds – interviewed by the PRESOURCE project partners

Photo: © iStockphoto.com / greg801

Project: PRESOURCE
ERDF funding: € 1 419 068
Duration: 2012 – 2014
Website: www.presource.eu

Photo: © Lovro Rozina

Unearthing new gold in former mining regions

For decades, coal was black gold, and mining meant prosperity. In central Europe's peripheral areas, mining often became the backbone of local economic development, and entire regions were shaped to meet the needs of this sector. In the post-industrial era, the boom has become bust: Former mining regions suffer environmental damage and a loss of jobs. ReSource seeks solutions to this problem.

Mines can be found everywhere in central Europe, but only a few are still active. Some former mines were completely depleted; others were forced to close for political, economic or environmental reasons. The regions that contained these mines are now plagued by environmental and economic problems. Mining activity often causes damage to the soil and ground water, through pollution that can linger for years. Termination of mining also causes social problems, like out-migration, urban decay and economic stagnation. The ReSource project seeks to turn the unique features of seven former mining districts in central Europe into positive resources for fostering sustainable development. Scientific support for the project's activities is provided through well-known institutes specialising in ecological and regional development and urban planning. The lessons learned by efforts to help these mining areas can be transferred to similar sites around Europe.

Local actions

In some places, ReSource partners explored the idea of harnessing geothermal energy from mine water. In Lusatia, Germany, pilot plantations showed how degraded mining areas can successfully be recultivated with bioenergy crops. The human-made infrastructure of former mining areas also provides opportunities. For instance, in Sokolov, the Czech Republic, plans were prepared for converting mining machinery into a look-out tower. And in the centre of the Hungarian city of Salgótarján, the local mining heritage was turned into a public exhibition: An underground display is exposed to view beneath a public walkway. In the Slovene region of Zasavje, a pilot project under ReSource compiled a "mining dictionary", containing unique words from the dying mining dialect of the region.

> "With the ReSource study, we not only found out about the heat demand of local enterprises but we were also able to thouroughly investigate a technical solution."
>
> Jörg Hilbig,
> Deputy Mayor of the City of Aue, Germany

Cooperation and exchange

An international summer school carried out within the ReSource project allowed for cooperation and exchange on a European level to enhance the attractiveness of former mine regions. Young people from various fields of interest and different countries jointly explored these regions in central Europe. Together, they identified tourist mining routes and came up with ideas for attracting tourism. A select number of these ideas were prepared for investment.
One of the ReSource project's core outputs is an internet-based knowledge database, which includes 70 cases of good practice and lists centres of knowledge. The database presents inspiring post-mining development approaches for both practitioners and scientists.
Because of the complexity and scale of work involved in effective re-utilisation of former mining areas, any reclamation effort requires the support of the wider socio-political environment. To help build this support, the partnership of the ReSource project issued policy requests for post-mining development, and compiled the requests in a study. This initiative draws the attention of national- and European-level policy makers to the challenges and opportunities facing post-mining regions.

70
Good practices collected in the ReSource post-mining knowledge database

32
Recommendations given in a resolution for pro-active development of post-mining regions

147
Million tons of hard coal produced in 1962 in Germany

132
Million tons of hard coal produced in 2009 in the entire EU-27

Photo: © Radke LMBV

Project: ReSource
ERDF funding: €2 337 902
Duration: 2009 – 2012
Website: www.resource-ce.eu

Protecting the rivers that define our cities

Photo: © City of Bydgoszcz: Marta Mróz

There is a growing demand for activities that help develop and protect the attractiveness and accessibility of rivers running through urban areas. The REURIS project seeks to meet this demand by using transnational cooperation to implement strategies and activities aimed at reconstruction of natural resources along urban river spaces, as well as sustainable management of those spaces.

Watercourses in urban and rural landscapes constitute irreplaceable resources that determine the diversity of living species and the ecological stability of the surrounding area. Water is also a major aesthetic element that can contribute greatly to the appearance of the landscape. Until recently, however, the need for landscape water management of urban rivers has not received the attention it deserves. The project partners in REURIS cooperated to change this situation, by improving landscape water management in order to restore natural conditions to water and wetland ecosystems – while also reviving the natural character and near-natural appearance of urban rivers to make them "vital spaces". Using good practices gathered from studying countries around the region, REURIS partners planned and implemented pilot actions for urban river revitalisation in six central European locations: Old Ponávka in Brno and Božkov Island in Plzeň (Czech Republic), local rivers and canals in Leipzig and Feuerbach in Stuttgart (Germany), as well as Old Bydgoszcz Canal in Bydgoszcz and Ślepiotka in Katowice (Poland). A key focus of the work of the REURIS partners was to restore and maintain the ecological functionality of the watercourse as an ecosystem.

This meant taking actions designed to:
- Increase the morphological diversity of each riverbed
- Increase the biodiversity of the biotopes in the alluvial plains
- Improve the water quality
- Renew and enhance supplementary vegetation

Flood protection solutions were also included in each revitalisation scheme. The REURIS pilot projects all involved public participation and political acceptance of sustainable urban river revitalisation, and they made important contributions to a cost-benefit analysis of the work necessary to rejuvenate these urban watercourses.

Lessons learned

Three years into the project, due to different local conditions, the pilot actions were in a variety of different implementation stages – from full revitalisation of part of the Ślepiotka River in Katowice, as planned, to a vision of a blue-green axis along the Old Ponávka in Brno. Nevertheless, all of the work undertaken in pilot projects offers valuable lessons for urban river revitalisation. These lessons have been published in two guides intended for others to use: the "REURIS Manual for Urban River Revitalisation", and the handbook "Urban Rivers – Vital Spaces. Guide for Urban River Revitalisation".

6

Pilot actions carried out by REURIS, of which 5 include investment

145

Length in kilometres of the Warta-Bydgoszcz canal

12 430

Plants and trees planted as part of the revitalisation of the Ślepiotka River in Katowice

> We need shared goals, cooperation and participation for sustainable management of urban river spaces. However, we still perceive financial and administrative obstacles to good water management. REURIS shows that it is possible to overcome them.

Waldemar Szendera,
Pracownia Żywokost S.C., Suszec, Poland

Project: REURIS
ERDF funding: €2 723 235
Duration: 2008 – 2012
Website: www.reuris.gig.eu

Sowing the seeds of biodiversity

Photo: © Bernhard Krautzer

Twenty years ago, it was considered nearly impossible to restore semi-natural grasslands back to their fully natural state. Since then, there have been numerous successful efforts, involving terrain ranging from lowlands on up to the alpine zones. The SALVERE project encourages restoration of semi-natural grasslands by outlining the different techniques available for undertaking this work.

When it comes to restoring a habitat of semi-natural grassland, the only source of seed material that can ensure successful site-specific conservation is existing semi-natural grassland. The places where this type of environment continues to survive provide a natural source of biodiversity for reclaiming other areas within a region. Because surviving habitats of semi-natural grasslands can contribute to the development and restoration of farmland with high natural value, protection, management and restoration of these habitats have become a special concern of agrarian and environmental policy.

The SALVERE project sought to encourage use of locally sourced seeds for restoration of semi-natural grasslands by cataloguing all available techniques for seed harvesting, propagation and trade for re-establishing this kind of habitat in central Europe. The methods explored by the project include the following.

Exploitation

Several successful methods for harvesting regional seed or plant material have been developed in recent years. The best choice of harvesting method is affected by factors such as topography, time of restoration compared to harvesting time and efficiency. Seed proportion and yield can differ depending on harvesting technique, vegetation type and the ripening stages of individual species. An alternative to the harvest of seeds from suitable donor sites is the propagation of seeds from regional provenance on agricultural sites. In this case, single species are collected by hand in nature and reproduced separately with the aid of agricultural techniques. After successful harvesting on the propagation fields, the seeds can be sown on larger areas. This method is already practiced on a larger scale in Austria, Germany and Switzerland.

Treatment and trade

Due to the regional limitations of introducing wild plants, a trade in wild seeds has developed. The commercial seed market already offers several species suitable for restoration of semi-natural grassland, but they are generally described as being of non-local provenance. Ensuring restoration of the original local ecosystem is only possible by harvesting material and seeds collected and propagated in the same region. In 2010, the Commission Directive EEC 60/2010 approved the trade of "wild" seeds from cultivated plants. This directive marked the starting point of a competition in trade between truly wild seeds and cultivated seeds.

Establishment

An important factor for successful restoration is assessment and preparation of receptor sites, to create optimal conditions for germination and establishment of introduced species. The assessment must determine as precisely as possible the special demands and threats to the habitat to be created – in terms of soil properties, nutrient supply, erosion tendency, competition with other plant species, sowing and planting time, availability of the seed and plant material, etc.

Semi-natural grasslands are generally created over a very long period of time, through extensive forms of use. The success of efforts to recreate these habitats is dependent on the degree of cover derived from target species and the similarity of the vegetation to the reference or target state.

> "SALVERE has a major impact on the biodiversity increase in central Europe. The described techniques are now already implemented in several other projects, e.g. using threshed material for green roofing and greening tram tracks with site-specific seeds."

Ulrike Pitha,
Assistant at the Institute for Soil Bioengineering,
University of Life Sciences Vienna, Austria

6
Languages available for SALVERE's handbooks on seed harvest and ecological restoration

16
Examples of successful restoration carried out by SALVERE

220
Germination capacity tests on single species done by SALVERE

Photo: © Bernhard Krautzer

Project: SALVERE
ERDF funding: € 1 218 254
Duration: 2009 – 2011
Website: www.salvereproject.eu

Transnational effort helps regions clear the air

Photo: © Fabio Giannetti

Air pollution not only has negative impacts on human health in central Europe, it can also detract from the attractiveness and competitiveness of our cities and regions. A great deal can be done toward mitigation on the regional level, which is why TAB develops international systems to monitor air pollution and uses the resulting data to create pollution-reduction plans for regions.

The goal of TAB is to implement efficient action plans that can mitigate the effects of air pollution on human health and economic development. The cities and regions involved in the project suffer different pollution problems but share a commitment to reducing its harmful impact. Their effort uses a transnational approach, which makes it possible to combine the experience of many regions and come up with best practices for creating mitigation strategies. But to make sure that these mitigation strategies are effective, the partners also designed their plans for implementation on the regional level.

Understanding air pollution

The project started with an assessment of the nature and extent of air pollution – and its interactions with the local climate – in each partner region. Next, the partners conducted a vulnerability assessment and a strengths and weaknesses analysis for each territory covered. This provided a structured approach for assessing the air pollution problems and established a basis for developing actions to meet the individual needs of the different regions. The project achieved these measurements with the support of an online virtual observatory, where each partner inserted the daily values of the main air pollutants. The tool makes it easy for citizens and decision makers to review pollution data in the form of a health-risk index, and to compare regions.

> The TAB project helps us to understand the 'state of health' of the territory and to identify appropriate solutions for better environmental quality. We need to take a breath in every sense: Better air quality improves the local economy as well as the quality of life.
>
> Agnese Ugues,
> Vice Mayor of Sangano Municipality, Italy

Addressing the problem locally

The TAB approach works on the assumption that efficient action plans must take into account partners' experiences and the expectations of stakeholders, including local government, industry, the health sector, interest groups and communities. The project establishes healthy environment platforms in each region, with the aim of coordinating the development and implementing an integrated set of tools and actions, which are then tested through specific pilot efforts.
Pilot actions undertaken as part of TAB address such issues as traffic management, household heating, energy efficiency and urban planning. Meanwhile, the TAB project organises courses, workshops and public presentations, to educate local residents and other stakeholders on the causes of air pollution, its influence on human health and preventive measures.

Project benefits

Beneficiaries of the project include vulnerable citizens' groups with specific health problems, businesses dealing in renewable resources, sanitation managers, public administrators and environmental associations. The results of TAB are expected to have a long-term impact after the project ends. For instance, the web-based observatory exposing comparative pollution data is built as an open system and potentially can be extended to other central European cities. Meanwhile, integrating the main project outputs into the Central European Healthy Environment Platform allows external stakeholders to profit from the results of TAB and replicate them throughout Europe.

56

Average percentage of European citizens who think that air quality has deteriorated over the last 10 years

200

Maximum number of deaths avoided per year in the TAB partner cities with a reduction to 20 µg/m3 of yearly PM10 concentration

5

Adaptation action plans implemented in each partner city/region

Project: TAB
ERDF funding: € 1 559 550
Duration: 2011 – 2014
Website: www.tabproject.eu

Building networks of protected landscapes

Photo: © Thomas Wrbka

Protected natural areas are often isolated islands of biodiversity, connected to one another by unprotected areas – landscapes that may contain traffic corridors or farmland but also have intact ecosystems providing plants and animals necessary space for migration, dispersion and reproduction. TransEcoNet strives to maintain or restore the ecological functionality of such areas.

To obtain a better understanding of ecological networks in central Europe, TransEcoNet analysed land-use changes over the last two centuries, determining the value of these areas and the threats to their cultural and natural heritage. The partners also developed measures to maintain or restore the ecological functionality of these spaces, with the hope of creating a better connection of protected and unprotected landscapes within transnational ecological networks.
The inventory of existing ecological networks performed by the project revealed that there are areas with strong connectivity of protected zones but also unprotected areas that host threatened animal and plant species. TransEcoNet elaborated recommendations on how to close these unprotected gaps in the network – through measures like enlarging protected areas or applying methods of extensive agriculture or forest management. It also reviewed national legislative and political frameworks regarding the ecological networks.
To determine the pressures on species and habitats, the project investigated the current status of protected areas, international agreements and regional nature conservation measures. It used this information to simulate landscape scenarios reflecting the degree of habitat suitability and the connectivity of selected areas. TransEcoNet also assessed benefits that the ecological networks provide – like water, food and medical resources – for several landscape types. By creating time series of historical maps from selected border areas, project researchers were able to trace land use change back to the 18th century. These analyses revealed the loss of biodiversity and fragmentation of ecological networks, in particular in the second half of the 20th century.

> The collection of spatial data about ecological networks and its transboundary harmonisation and interconnection is the most important achievement of the project. In particular, the analysis of gaps in ecological networks provides interesting results.
>
> Ondřej Vítek, Agency for Nature Conservation and Landscape Protection, the Czech Republic

Public awareness

Border landscapes are more than transition areas or city backyards for providing recreation and food supply. Interviews of locals indicate strong personal relationships to the landscape, where young people discover a new quality of life. Local workshops, exhibitions and excursions have been carried out to present the cultural traditions of these areas and to highlight the phenomenon of landscape change. A thematic brochure, depicting the current status of planning instruments and tools being used to consider ecological networks, helps those involved in spatial planning, nature conservation and rural development to be more aware of the "lifelines of biodiversity".
The results of TransEcoNet have been disseminated all around central Europe. Local follow-up projects should help to close the gaps in the networks and implement other project recommendations. On the international level, there is a need for more initiatives involving all stakeholders and a concerted effort to harmonise methods for building a European ecological network.

5
Documentaries, prepared by TransEcoNet, covering the perception of landscape change in six central European countries

221
Interviews conducted with local residents and experts concerning landscape change and ecological networks

1747
Year of publication of the oldest map analysed by TransEcoNet

Photo: © Hana Skokanová

Project: TransEcoNet
ERDF funding: €2 293 617
Duration: 2009 – 2012
Website: www.transeconet.eu

From informal waste trade to formal re-use

Informal waste collection is common in central Europe, where many people earn a living by repairing and reselling discarded items. This activity can be beneficial, but if it is not controlled it poses risks. TransWaste seeks to formalise this waste collection in ways that favourably address economic, environmental and social challenges.

Just as in developing countries, many people in central Europe are involved in informal waste collection and re-use. They travel long distances, often crossing borders to more affluent countries, where they collect items that can be sold for re-use in their own country. The informal character of this work is disadvantageous for both collectors, who have poor working conditions and no social security, and waste management authorities in the collectors' target countries, where collection can distort waste quotas and possibly cause loss of income. Informal collectors can help the environment by recycling goods that would otherwise be thrown away, but their activities may be harmful if hazardous parts of collected items are disposed of improperly. And yet there is little information on informal waste collection.

Pioneer work

As the EU strives to harmonise waste management structures among its partner countries, authorities need to appreciate and understand the challenges arising from the informal waste collection sector. TransWaste attempts to fill the gap in information on this sector. The project team consists of seven partners from five countries that are affected by informal collection: Austria, Germany, Hungary, Poland and Slovakia.

TransWaste investigated the informal waste collection sector through techniques such as interviews, questionnaires, waste site observations and traffic counts at border crossings. Based on the project's measurements, the amount of informal waste collection conducted in Austria is about 100 000 tonnes per year. This amounts to roughly 15-21 percent of the country's officially collected bulky waste and electrical and electronic equipment waste. About 70 000 tonnes of the informal waste collection in Austria was transported to Hungary, and most of the collectors in Austria (69 percent) came from Hungary. In Germany, most informal waste collectors came from Poland (27 percent) and the Czech Republic (14 percent), while in Slovakia most of these collectors come from their own country. In general, informal waste collectors collect furniture, household electrical and electronic equipment waste, followed by other items, such as tyres, clothes and wood.

Conservation through reuse

With legislation like the Waste Framework Directive (2008), the EU is putting emphasis on the need to re-use waste. TransWaste has identified different approaches to informal waste management that consider the importance of re-use and its growing market potential. In a process that involved all stakeholders, each partner developed at least one plan for formalisation, based on country-specific conditions. These ideas and pilots are assessed environmentally, socially and economically, to ensure sustainable solutions. The "Transnational Action Plan" gives guidance on the issue and is part of the project's contribution to a better understanding of informal waste management and the means for formalising it.

> "I support the TransWaste project because I hope that in the future it will help me to do my job without conflicts with the police. Formalisation of waste collection is good because then I will be better accepted by the people and hopefully get better goods more easily."

Anonymous informal waste collector from Hungary

Photo: © ABF-BOKU

69

Percentage of informal waste collection in Austria done by Hungarian waste collectors

2008

Year of publication of the EU Waste Framework Directive

80 000

Cars transporting collected items from Austria to Hungary every year

Photo: © ABF-BOKU

Project: TransWaste
ERDF funding: € 2 187 140
Duration: 2009 – 2012
Website: www.transwaste.eu

Photo: © Frank Andaczek

Are ultrafine particles making us sick?

The air in cities is rife with ultrafine particles. While ambient ultrafine particles appear likely to have a negative impact on our health, there are not enough conclusive studies on this threat. UFIREG is measuring ultrafine particles in five central European cities, and analysing their impact on human health, with the goal of contributing to environmental policy.

Increasing automobile traffic means that the air we breathe contains more ultrafine particles – airborne particles that are smaller than 0.1 micrometres and often contain soot. Ultrafine particles are so tiny, that their size in relation to a football has the same proportion as the football compared to the earth. Perhaps because the threat is so hard to see, the public and politicians lack awareness of the potential risks of ultrafine particles, and few have raised concerns about the impact that these particles may have on our lives. Consequently, there is limited policy to address the issue. The UFIREG project is intended to counter this lack of awareness by measuring the concentration of ultrafine particles in the ambient air and helping to give a clearer understanding of their impact on people's health.
Since ultrafine particles are not routinely monitored by national authorities in Europe, UFIREG had to start from scratch, establishing its own standardised measurement system. This network allows the project to measure particles with a maximum diameter of 500 nanometres in five sites, located in Germany, the Czech Republic, Slovenia and Ukraine. UFIREG partners determined the temporal and spatial variation of these very small particles and prepared a practicable ultrafine-particles measurement strategy that is applicable in other European cities.

> "Ultrafine particles are extremely tiny and therefore so dangerous – small but nasty."
>
> Holger Gerwig,
> Federal Environmental Office, Germany

20
Percentage of the particle mass in cities that consists of toxins

90
Percentage of particles that may stay behind in the lungs when exhaling

500
Maximum diameter of particles measured by the project

Evaluating health impacts, raising awareness

The measurement of ultrafine particle concentrations in ambient air makes it possible to evaluate the short-term effects these particles have on human mortality and morbidity – including their influence on cardiovascular and respiratory diseases. Vulnerable population groups, such as older citizens, children and people who already have other illnesses, can be especially negatively affected by air pollution.
One of the project's main goals is to share the results of the measurements and health research by getting the information to people who are interested in the topic. UFIREG has implemented an interdisciplinary and international network of interested people from the fields of policy, science, environment and public health. The project also provides an interdisciplinary scientific platform to promote an exchange of knowledge between experts.
The scientific knowledge that these experts share on the health effects of air pollution in cities is highly interesting for local authorities. UFIREG communicates with city officials, to make sure they have the information they need to assess and address the problem.
The project also makes it a priority to present the results of their studies to policy makers. In light of the lack of legal regulations for ultrafine particles, UFIREG aims to formulate recommendations for regional and European environmental and health policy – with an overall goal of combatting air pollution.

Photo: © Volker Dietz, Environmental Agency Dresden

Project: UFIREG
ERDF funding: € 1 603 233
Duration: 2011 – 2014
Website: www.ufireg-central.eu

Photo: © Universita IUAV di Venezia

Trying to keep cool within urban heat islands

Urban heat islands are a new type of microclimatic phenomenon that causes a significant increase in the temperature of cities as compared to surrounding areas. Although experts consider this an urgent EU public health concern, there are too few policies to address it. UHI seeks to encourage a transnational discussion of urban heat islands, as well as efforts to measure and address the problem.

UHI encourages cooperation between climatologists and urban planners in an effort to make our cities healthier places to live. Along with raising awareness, the project also supports efforts to monitor urban heat islands, conducts pilots aimed at mitigation, and promotes longer-term policy solutions.
Cities and metropolitan areas are the engines of economic growth and employment; they play a key role as centres of innovation and they are on the frontline of social cohesion and environmental sustainability. Unfortunately, they also foster environmental challenges, like the urban heat island effect, which may be exacerbated by climate change.
The phenomenon of urban heat islands is caused when paved surfaces greatly outnumber the green areas in a city. The problem has been known and studied since the 1980s. Buildings and roads absorb the heat produced during the day and then release it, like giant heaters. As a result there is often big difference in the temperature between a city and its surrounding areas. Urban heat islands produce multiple negative effects in a city: They can increase energy consumption for cooling homes, offices and shopping centres, and cause more frequent episodes of blackouts, due to the excessive demands for electricity. But even more serious are the effects that the higher temperatures have on the health of citizens.

> “With the new plan for urban redevelopment, and the help of the UHI project, the city of Modena will be able to reshape the artisan village in a more functional manner that better meets the needs of citizens and companies.”
>
> Marcello Capucci,
> Head of Transformation and Urban Projects,
> Modena, Italy

Raising awareness, pilot projects

An important part of the work of UHI is to bring attention to the problem on a transnational level. UHI seeks to examine possible climate change adaptation measures that can help to alleviate this human-made microclimate phenomenon and show how these strategies can be practically applied by policy makers and citizens.
The project addresses the problem, and helps us learn more about it also through pilot initiatives. The pilots involved feasibility studies and strategies for appropriately altering planning rules and governance to tackle the problem of urban heat islands. The pilots were carried out in eight metropolitan areas: Bologna/Modena, Budapest, Ljubljana, Lodz, Prague, Stuttgart, Venezia/Padova, and Vienna.
The feasibility studies carried out in the pilot areas focused on the specific morphology of EU urban areas, which are often characterised by the presence of historical old towns. The results of the pilots are therefore useful for other European local administrators who are seeking to integrate sustainable development approaches in their territorial planning policies.
The plans developed by the pilots can be integrated into the national and regional programmes for urban and land planning. They can also contribute to the application of an integrated decision support system, where a systematic diagnosis of climate change-related problems foster solutions that are encouraged by policymakers in an effort to elaborate long-term and effective programmes for the development of the urban areas.

1810
Year when the urban heat island phenomenon was first investigated and described by Luke Howard

16
Percentage of cities becoming a megacity by 2015

8
Pilot models applied by the project representing different mitigation measures

Photo: © Alex Loidl

Project: UHI
ERDF funding: €3 143 932
Duration: 2011 – 2014
Website: www.eu-uhi.eu

Improving cities from the ground up

As cities grow, "land take", which is the increase in settlement areas, and "sealing", meaning the covering up of soil with artificial surfaces, are endangering soil resources in urban areas. To help combat this problem, URBAN SMS has developed a comprehensive urban soil management strategy that allows planners to consider the value of soils and to involve soil protection in the planning process.

Soil has many essential functions in the development of human society – from sustaining living organisms and regulating water circulation to eliminating the impact of pollution, cycling nutrients, producing plants and allowing microclimate control. A poor understanding of soil's importance results in uncontrolled land take and soil sealing. The consequent reduction in healthy soil has a tremendous impact on the quality of environment in urban areas, causing a loss in biodiversity, increased run-off and flooding, groundwater contamination, microclimate deterioration and air pollution by particulate matter.

A sustainable soil management approach is needed to prevent these problems. This need was recognised at the 2007 European Land and Soil Alliance (ELSA) conference in Stuttgart and was outlined in the "Stuttgart Declaration". To help implement the goals of this declaration, a team of 11 partners – including five research institutions, two regional authorities and four municipalities, from seven central European countries – united under the leadership of the Department for Environmental Protection of the City of Stuttgart and developed the URBAN SMS project.
Two major outputs of the project are the "Municipal Soil Manager" and the "Soil Management Suite". The "Municipal Soil Manager" is a guide based on an assessment of existing approaches to soil issues in central European countries and relevant European and national legislation. It provides guidance for integrating soil protection into urban planning. The "Soil Management Suite" is a set of IT tools for soil assessment and processing of spatial soil data as input information for urban land use planning. It includes a simple desktop tool for non-spatial analysis of soil data that was designed for urban planners and other experts not familiar with soil science. The "Soil Management Suite" also includes a web-based geo information system for more comprehensive spatial analysis and interpretation of soil data, and it involves several specialised tools.

> "URBAN SMS tools have been developed for land evaluation, especially the agricultural soil quality tool, which helps to identify high quality soils to be protected and poor quality soils where construction should be concentrated."
>
> Dr. Blanka Ilavská,
> Soil Scientist with the Regional Land Bureau of Bratislava District, Slovakia

Providing guidance

Other outputs included the "Guide for Soil in Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA)", which describes an approach for improving the consideration of soil in related studies. The "Pilot Action Case Study Book" summarises the results of selected pilots that tested the soil management approach designed by the URBAN SMS project and provides real examples of soil management implementation in central European cities.

Raising awareness

The project also produced an "Awareness Raising Package", which included a film and a set of documents demonstrating the importance of appropriate soil management in cities, as well as a comprehensive brochure entitled "Soil in the City – URBAN Soil Management Strategy".

2020
Year by when Germany aims to reduce urban land take to 30 hectares per day

0.61
Percentage of annual increase of land take for urban area and infrastructure use in Europe between 2000 and 2006

8
Pilot actions in which URBAN SMS tested new tools they developed

Project: URBAN SMS
ERDF funding: € 1 707 095
Duration: 2008 – 2012
Website: www.urban-sms.eu

A new approach to urban water management

Photo: © URBAN_WFTP

Conservation of fresh-water is a Europe-wide problem, but the solution begins with better management on the local and regional level. The URBAN_WFTP project seeks to reduce the "water footprint" – or total water use – of individuals, businesses and cities. The project involves regional stakeholders in exchanges of information, environmental initiatives and promotion of transnational solutions.

Water is a fundamental, renewable resource, but it is available in limited quantity on our planet. In fact, less than 1 percent of the water in the world is fresh water that is accessible for our use. Worldwide population growth, climate change and production processes are putting stress on the availability and accessibility of water. Even in Europe, water scarcity is an increasing problem – impacting more than 10 percent of the European population and almost 20 percent of its territory according to an EU study. The URBAN_WFTP was developed in recognition of the need for better water management to guarantee sustainable development in central Europe. Nine partners from Austria, Germany, Hungary, Italy and Poland are involved in the project, which adapts the water footprint methodology to urban areas. Special focus is on ways to significantly improve conservation in citizens' water use. While industrial water use also needs to be checked, the average citizen's lack of awareness about water use often results in severe waste by individuals.

Virtual labs determine water footprint

The project works through the adoption of eco-friendly behaviour by European citizens, promoting water-effective technologies in three different pilot areas: Innsbruck in Austria, Vicenza in Italy and Wroclaw in Poland. Ad-hoc virtual labs were set up in these cities to define strategic plans for sustainable local urban water management. Virtual labs adopted the water footprint methodology to contribute to long-term action that supports continuous improvement of water quality and water use by citizens.

The first beneficiaries of the URBAN_WFTP approach will be stakeholders from the three pilot regions. The health of their ecosystems will be preserved, guaranteeing a better quality of life for residents. Meanwhile, companies in the pilot regions can benefit from the adoption and use of more water-efficient technologies, and local public institutions will obtain a more complete view of the water management issue, and therefore will be able to make more considered decisions. Other European citizens will also benefit from the outcomes of the project, because the water footprint approach is designed as a standard to be applied Europe-wide. The virtual labs created through the project promote the water footprint methodology in their individual regions, and beyond. The effort to involve local stakeholders and decision makers in maintaining the labs, and the creation of networks of experts, will contribute to a long lasting application of this approach even after the end of the project. Thus, the "Urban Water Footprint Approach" can become a tool to contribute to a better future.

> The application of the "Urban Water Footprint Approach" is already giving us a lot of interesting information that will support our decisions to guarantee a better service to our citizen.
>
> Fabio Trolese,
> Director of Acque Vicentine SpA, Vicenza, Italy

878 100

Inhabitants living in the urban areas under study

1 757

Total water footprint of the areas under study in cubic meters per year

10 - 20

Percentage of water footprint improvement with the introduction of new water technologies

Photo: © Rathaus Medien service Stadt Innsbruck

Project: URBAN_WFTP
ERDF funding: € 1 240 032
Duration: 2012 – 2014
Website: www.urban-wftp.eu

Making great urban public spaces for everyone

Photo: © Zuzana Grošaftová

With 75 percent of the central European population living in or near cities, urban public spaces have vital importance. The UrbSpace project renewed 15 open areas in an innovative process that involved local citizens and gave special consideration to environmental concerns, social aspects, gender-specific needs, accessibility, crime prevention and design requirements.

Urban spaces have a direct influence on how local people and visitors perceive urban areas, how they identify with them and how well social life is functioning. They also influence economic prosperity. Their environmental importance is underlined by their potential to mitigate negative effects of climate change, which are likely to be especially prevalent in urban areas. Urban development is not only about planning buildings and activities, but also about creating places having a positive impact on their surroundings. The design of high quality urban spaces, involving inputs from community groups, is thus an increasingly important aspect of the planning process.

Long-term impacts

During the renovation of 15 open urban spaces in Poland, Slovakia, the Czech Republic, Hungary and Italy, UrbSpace focused on the preparation of strategic planning documents, such as the "Accessibility Plan for Erfurt", which helps others who intend to do something similar. Getting citizens involved, on a level that is not the norm in central Europe, resulted in renewed public spaces that are widely accepted by the local community. In many pilot locations, the municipalities invested considerable amounts of their own financial resources as co-financing alongside ERDF funds. This was the case with the pilots in:

- Sidlisko II Prešov, Slovakia
- Brno–Nový Lískovec, the Czech Republic
- Urban Tree Path in Sopot, Poland
- Harangod Park in Nagykálló, Hungary
- Municipalities Park near Milan, Italy

Beyond physically improving open spaces, the project managed to involve local people in the planning process, helped to change the approach of decision makers, and introduced new tools for urban planners, architects, policymakers and local authorities.

Benefits for citizens

The renovated open spaces are now used by citizens, families, children and visitors. In Erfurt the most visible benefit of accessibility planning is that the public space can now be used by a number of persons with various disabilities, the elderly and families with children in pushchairs.
The tools created, such as a "Joint Strategy and Methodology", were translated into eight languages and are used to train professionals and public employees on how to achieve a better quality of public space.

Follow-up and exploitation

The UrbSpace results are a basis for ongoing discussion in the involved municipalities. For example in Nagykálló, Hungary, the planning methodology developed, and the experience from the project, helped the municipality prepare the "Public Spaces Development Plan of Nagykálló", which will guide the town's strategic urban spaces development. And the "Accessibility Plan for Erfurt" will be used to encourage more accessible development elsewhere in the town.

> "The local community shall be at the heart of all our efforts when planning to revitalise open spaces. I had never before thought that environmental, social, security, gender and design aspects could be taken into account in renovating the same place."

Vladimír Ligus,
Chief Architect of Prešov City, Slovakia

What is more, the results of the project are to be taken as a starting point by the "European Network of Experts on Public Spaces", which is currently under development. The good practices undertaken within the project will become part of a standardised process designed to enhance the quality of public spaces across Europe. Experts who worked for the project will benefit from the lessons they learned and apply them in their daily work, with positive results for the citizens.

10
Open urban spaces renovated by the project in five central European countries

75
Percentage of central Europeans living in urban spaces

Photo: © Zuzana Grošaftová

Project: UrbSpace
ERDF funding: € 1 759 414
Duration: 2008 – 2011
Website: www.urbanspace.rec.org

Photo: © Monika Kyšicová

Maintaining the vitality of our landscapes

The natural resources and historical heritage that make up our landscapes are an essential part of our regional identity. Yet development in much of Europe seems to take place with a limited appreciation for the importance of cultural landscapes. VITAL LANDSCAPES undertakes a range of activities to make this issue a focal concern of regional and international discourse.

The VITAL LANDSCAPES project includes eight partners, from academia and the professional sphere, who share a desire to preserve the quality, beauty and diversity of our landscapes. The project tests innovative forms of citizen involvement, including transnational events like conferences, working-group meetings and study tours. The approach gives locals responsibility for their immediate surroundings while bringing in international expertise. Stakeholders from around central Europe discuss approaches for landscape preservation, so they can learn from one another and increase their pool of potential solutions.

Acceptance through participation

VITAL LANDSCAPES gives special attention to involving the local population in decisions about the future development of their own landscape. In Unteres Saaletal in Germany, the project trains cultural landscape guides who act as ambassadors for the region, informing the public about the scenic qualities of this area. The team in Unteres Saaletal also works with local experts to identify suitable sites where the natural environment can be supported, as a counterbalance for nearby areas undergoing more intensive land development. In the Austrian Mühlviertel region, the project organises landscape dialogues to ascertain the expectations of locals concerning the development of their village and surroundings. Project experts collect opinions and conduct meetings where participants are invited to formulate priorities for their community and to discuss development scenarios. In the Sumava Mountains in the Czech Republic for example, regular meetings help to strengthen local citizens' connections with the newly created biosphere reserve. In Ljubljansko Barje in Slovenia, local farmers teach suburban families about the value of local food and explain to children the importance of an intact natural landscape.

Making landscape change visible

The changes that affect our landscapes often occur so slowly that they can be difficult to perceive. We can more clearly demonstrate the process of change through images or simulations that help stakeholders visualise threats to the landscape. The project uses a variety of visualisation techniques to provide an objective basis for discussion. It examines advanced methods for visualisation along with using conventional methods – like comparison of historical images, maps and orthophotos – as was done in Male Karpaty, Slovakia. More cutting-edge techniques include developing GoogleEarth apps that make it possible to create 3D representations of changes to landscape elements in the Nagyberek region of Hungary. In Msciwojow in Poland, the project works together with local stakeholders, using a 3D modelling tool to help residents formulate a vision for their village after rehabilitation.
In its efforts to preserve cultural landscapes, the project is communicating ways to connect the diverse needs of economic development, nature protection and social welfare. It encourages dialogue between landscape maintainers – including farmers, investors, environmentalists and residents – at the regional and European levels.

> "With the help of VITAL LANDSCAPES we completed our database of areas and landscape maintenance measures in Unteres Saaletal. In addition, numerous workshops with citizens and stakeholders produced new ideas on how to develop our landscape."

Gerd Villwock,
Vice Chairman of Unteres Saaletal Nature Park, Germany

6
Films produced with school pupils documenting how farmers contribute to landscape preservation

25
Graduates of VITAL LANDSCAPE's training to become cultural landscape guides

1 050
Square kilometres of central European cultural landscapes worthy of being managed sustainably

Photo: © Ines Pozimski

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The Joint Technical Secretariat (JTS) of the CENTRAL EUROPE Programme is based in Vienna (Austria) and can be contacted at any time for queries related to finance, project management, or communication.
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