BETTER Life

Bringing Excellence to Transformative Socially Engaged Research in Life Sciences through Integrated Digital Centers

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Project information

Title	Bringing Excellence to Transformative Socially Engaged Research in Life Sciences through Integrated Digital Centers
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Document Information

Title	**EXAMPLES OF INNOVATIVE PRACTICES IN LIFE SCIENCES**
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TASK 2.3: EXAMPLES OF INNOVATIVE PRACTICES IN LIFE SCIENCES

(Lead by EDUCONS; supported by DU and EMU; contribution: ALL)

ABSTRACT

The consortium will identify innovative practices in the EU for Socially Engaged Research (SER)(three per academic partner with a life science focus and two by non-academic partners focused on nonlife science practices). These high impact potential and innovative practices could be implemented by the partners of the consortium and/or external institutions and aim to inform the development of the strategic plan and the digital platform.

TASK 2.3: EXAMPLES OF INNOVATIVE PRACTICES IN LIFE SCIENCES

(Lead by EDUCONS; supported by DU and EMU; contribution: ALL)

Background

BETTER Life builds on previous European projects that enhanced the concepts of societal engagement and citizen science by responding to the European Excellence Initiative for strengthening capacity for excellence in HEIs and their surrounding ecosystems. Socially engaged research is the contemporary paradigm for science production, valorisation, and enhancement of its local and international impact.

Description of Task 2.3:

The consortium will identify innovative practices in the EU for SER (three per academic partner with a life science focus and two by non-academic partners focused on nonlife science practices). These high impact potential and innovative practices could be implemented by the partners of the consortium and/or external institutions and aim to inform the development of the strategic plan and the digital platform.

Timeline

Start date: September 2022 – Deadline: December 2022

Task by partner (All partners)

3 good practices in life sciences (per each of the 7 academic partners) and 2 good practices reports in fields different than life sciences (per each of the 2 non-academic partners).
Each practice should have a maximum extension of two pages

Final version (EDUCONS)

A PDF document compiling 25 Innovative practices in socially engaged research (the final report should not exceed 60 pages)

Guiding question

How are university implementing Socially Engaged research?

Contents

Contents

Title	**POLIMI DESIS Lab: Co-design for Social Innovation and Sustainability**
Organization implementing the initiative	Department of Design, Politecnico di Milano, Milan, Italy.
Timeframe	2009-Present
Objective	To explore how design can enable people, communities, enterprises, and social actors to activate and manage innovation processes, aimed at experimenting with sustainable, convivial and collaborative ways of living and doing.
Barriers and challenges	Barrier: Growing pressure of social challenges (e.g. social cohesion, urban regeneration, healthy food accessibility, water and sustainable energy management, etc) in which design can play a vital role. Challenge: embedding social innovation and sustainability into product-service-system design. Barrier: Design processes guided exclusively by the market. Challenge: involve communities in the design processes to target societal needs. Barrier: lack of articulation of societal stakeholders to work on pressuring societal challenges. Challenge: Developing strategies to consolidate the collaboration among academia, civil society, and the public and private sectors.

Overview of the Initiative

POLIMI DESIS Lab brings together **researchers adopting** a focus on design for services and design activism applied to product-service-system design. The lab researches on how design can support and trigger social innovation by combining creativity and co-design processes with communities.

POLIMI DESIS Lab applies the concept of community-centred design to work with local groups of stakeholders, introduce innovative changes and tackle societal challenges. This approach implies interdisciplinarity among service design, user-centred design, interior/spatial design, territory and local development design, communication, economics, architecture, planning, and sociology, among others.

The project works under the belief that service design, user-centred design, interior/spatial design, and territory and local development design contribute to the identity of the results and both tangible and intangible aspects should be considered as part of the design process. To achieve this, the project uses a participatory process combing spatial and service design. The results are multi-stakeholder research projects committed to designing the future of public goods.

This research group belongs to the Department of Design of the Politecnico di Milano, and it is a member of the DESIS Network of design for social innovation and sustainability. DESIS network was founded in 2009 in Italy to introduce the notion of creative communities and social innovation in several design schools worldwide. Nowadays, the network articulates 50+ DESIS Labs in Africa, Asia, Europe, North America, Oceania, and South America.

Target groups

Researchers, designers, and surrounding communities

Level of operation

Departmental

Activities implemented (input and process)

- ✓ Teaching: postgraduate teaching on topics such as Service Design and Human Resources, resilient cities, city services, job design, and temporary urban solutions.
- ✓ Research: topics such as participatory design, civic design, design for value Co-Creation, and social innovation, among others.

Co-design local and international projects: temporary urban solutions, public space design, cross-cultural societies, walking cities, producer-consumer direct re-connection, and short supply chains, among others.

Key results / impact of the initiative

The key results, according to the projects developed by POLIMI DESIS Lab:

- ✓ Community-supported agriculture gardens (Coltivando: The Convivial Garden at Politecnico di Milano).
- ✓ Codesign of services with the local communities (Creative Citizens: A meeting space between designers, citizens, local stakeholders and institutions).
- ✓ Social consultation for design policy agendas (CIMULACT: Engaging all of Europe in shaping a desirable and sustainable future).
- ✓ Incubator for fostering socially engaged projects (CampUS: Incubation and settings for social practices).
- ✓ Creation of facilities for engaging with local communities (CITY SERVICE HUBS: The new places to go.
- ✓ Creative work with communities in remote places (SMOTIES: Human Cities - Creative works with small and remote places).

Dissemination of entrepreneurial skills in targeted neighbourhoods (The Neighbourhood School)

Identified benefits:

The potential benefits generated by POLIMI DESIS Lab include:

- ✓ Enhancing the leadership role of the institution at the local level: by working with the local ecosystem, the POLIMI DESIS Lab consolidates the role of the institution as a key stakeholder at the regional level.
- ✓ Providing valuable teaching resources: The work on topics such as product-service-system design, human resources, resilient cities, and urbanism has required the development of new competences and the development of valuable resources for students and faculty at the institution.
- ✓ Generating funding opportunities: By co-designing local and international projects funded by sources such as the Creative Europe Programme of the European Union and the Ministry of Cultural Heritage and Activities in Italy, the POLIMI DESIS Lab can bring in funding that can support the institution's research and teaching efforts.
- ✓ Promoting interdisciplinary collaboration: The lab's focus on interdisciplinarity in areas such as design, urbanism, sociology, and economics can facilitate collaboration and the exchange of ideas across different departments and disciplines at the institution.

Addressing societal challenges: The lab's focus on designing innovative solutions to tackle societal challenges has had a positive impact on the surrounding communities.

Funding body

Several projects are funded by the Creative Europe Programme of The European Union, the Ministry of Cultural Heritage and Activities (Italy), the 7th Framework Programme for Research, the Municipality of Milano, and the Cariplo Foundation, among others.

More information

POLIMI DESIS Lab: https://www.desis.polimi.it/

Title

Living Knowledge: The International Science Shop Network

Organization implementing the initiative

Living Knowledge Network, Bonn Science Shop (WILA Bonn), Bonn, Germany.

Timeframe

2001-Present

Objective

The Living Knowledge Network aims at:

- ✓ Promoting civil society's cooperation with universities and research institutes and organisations.
- ✓ Proposing, organising and supporting international participatory projects, conferences, seminars, and courses.
- ✓ Encouraging and facilitating staff exchanges between member institutions and organisations in the form of training periods and study leaves for professionals, researchers and students, or through summer schools and similar activities.

Having a strategic impact on research and innovation policies.

Barriers and challenges

Barrier: Lack of clarity on how to structure, run and enhance the activities of science shops engaged in community-participatory research.
Challenge: to articulate the open knowledge, resources and stakeholders for sharing the knowledge on how to establish, run, network and enhance the impacts of science shops implementing community-based research.
Barrier: Lack of awareness on how civil society could be involved in science.
Challenge: promoting the co-creation of knowledge among civil society organisations and researchers.

Overview of the Initiative

"Living Knowledge" is a network founded in 2001, bringing together diverse stakeholders related to Science Shops and similar organisations active in public engagement and involvement of civil society organisations in Research & Innovation, and those supporting related activities. They define a science shop as "an entity that provides independent, participatory research support in response to concerns expressed by civil society". Science shops integrate knowledge from social and human sciences, as well as natural, physical, engineering and technical sciences.

This network groups 70+ science shops located in 20 European countries, plus akin organizations in Australia, Canada, Haiti, Israel, South Africa, and the United States of America.

The network has developed systematic knowledge of science shops, providing information on how science shops work, organizational structures, work with stakeholders, communication, staff, funding, and policies. This information has been centralized as the Living Knowledge Toolkit on the website of the network.
Living knowledge coordinates the International Living Knowledge Conference that started in 2001 and had its 9th version in June 2022, at the University Groningen, The Netherlands. The network also organizes the Science Shop Summer School, aimed at bringing together experienced Science Shop staff to discuss operational options, good practices, and barriers in running a science shop.

Target groups

Scientists, science communicators, community leaders, NGO representatives, graduate students, PhD students, and other stakeholders interested in setting up a science shop or starting community-based research projects.

Level of operation

International, focused on supporting science shops.

Activities implemented (input and process)

- ✓ Science Shop Summer School: an intensive programme focusing on the concepts of science shops and community-based research
- ✓ Living Knowledge Conferences: event bringing together all those involved in doing or supporting research with and for communities.
- ✓ Articles, guidelines for action, method manuals, templates, and digital tools: open tools supporting the development and strengthening of science shops.
- ✓ Participation in projects: collaboration in projects related to community-based research and science shops.

Contribute to the InSPIRES Open Platform: crowdsourcing platform featuring citizen-led participatory research and innovation projects promoted by knowledge intermediary units, such as science shops, citizen science groups or units.

Key results / impact of the initiative

- ✓ Consolidated international network of science shops.
- ✓ Participation in diverse European projects related to science shops and community-based research.
- ✓ Upskilling of stakeholders working with community-based research and science shops in Europe and worldwide.
- ✓ Networking and sharing of knowledge in the nine editions of the International Living Knowledge conference that brings interested participants from all over the world.
- ✓ Development of participatory research activities with diverse partner institutions in Europe.

Publication of the "Living Knowledge - International Journal of Community Based Research".

Identified benefits:

- ✓ Articulation of science shops under the model of a network, allowing the participants to share resources, tools, knowledge, and good practices, and facilitating twinning initiatives and enhancement of the current practices on the field.
- ✓ Facilitation of cooperation among Science Shops, universities, community-based research organisations and related institutions in Europe and worldwide.
- ✓ Capacity for centralising good practices, organizational models, tools, research ideas, questions, agendas, and participation in monitoring, steering, advising on or performing research related to community-based research supported by science shops.

Capacity for upskilling, orienting, participating, and co-creating knowledge with scientists, early career researchers, civil society representatives, and diverse stakeholders related to science shops and community-based research.

Funding body

European projects (mainly Horizon 2020) and fees from diverse activities.

More information

Living Knowledge Network: https://livingknowledge.org/

Title

Transformative research for sustainability challenges

Organization implementing the initiative

Utrecht University, Wageningen University Campus, Stockholm Resilience Center

Timeframe

2021-Present

Objective

To enable researcher to design "radically different future"

Barriers and challenges

Many scholars are addressing global sustainability issues in their research, yet how to connect research with action is often not part of a PhD education.

Overview of the Initiative

"Transformative Research for Sustainability Challenges" provides PhD candidates with exciting concepts and methods to enhance the potential of their research to beneficially contribute to society and the environment. Participants are guided through a process designed to surface and examine fundamental assumptions that underpin their research approaches to inspire future trajectories both within and beyond their PhD. This course is taught by a range of scholars in Utrecht University (UU), Wageningen University & Research (WUR), University of Twente (UT) and Stockholm Resilience Centre (SRC) who will guide students through critical concepts, methodological innovations, and tricky dilemmas that have challenged and enabled their own work. The course content focuses on four main aspects of transformative research identified in the 71 Visions Report. This course received an Education Innovation Award in 2021 and is supported by WIMEK, EWUU Alliance, Urban Futures Studio, Utrecht University and Centre for Unusual Collaborations (CUCo).

Target groups

PhD students and early career researchers

Level of operation

Departmental

Activities implemented (input and process)

- ✓ Lectures and interactive exercises that shed light on transformative concepts, frameworks, tools and methods, delivered by a broad range of researchers carrying out transformative methods in their research
- ✓ Immersive engagement with innovative case studies that engage various societal actors to bring about different futures
- ✓ Creating their own personal narrative of how their research can contribute to fair and sustainable futures
- ✓ Involvement in peer-to-peer learning sessions and walks
- ✓ Home study (readings, videos, writing) in between sessions

Informal social interactions with peers and teaching team

Key results / impact of the initiative

The course is intended for researchers and PhD students to:

- ✓ Discover different approaches and methodologies to transformative research through global case studies
- ✓ Hone skills to evaluate how research design, methodology, instruments, approaches, activities implementation, analysis and communication may shape the contribution of research to tackling global social-environmental challenges
- ✓ Accumulate knowledge, confidence and ability to apply transformative processes/methods in researchers' present and future research and navigate emerging challenges to spearhead its rewarding impacts

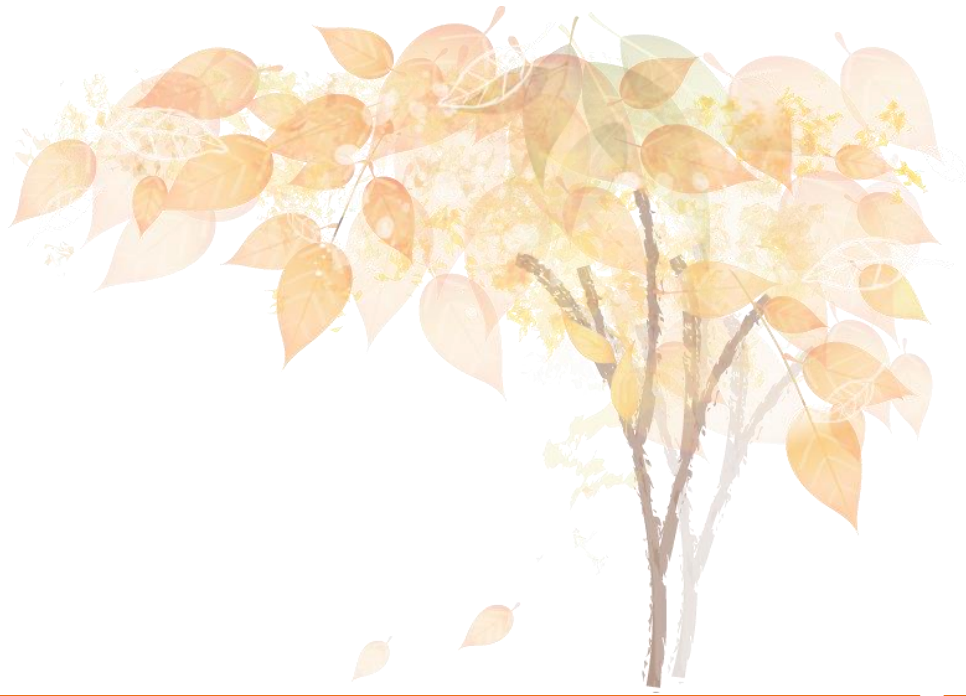
Embed researchers within growing network of diverse researchers to further researchers' inspiration, skillset and capability to undertake transformative research in collaboration with others similarly minded researchers

Identified benefits:

- ✓ Contributes to pluralised research
- ✓ Contributes to institutionalised transformation
- ✓ Contributes to transforming learning systems
- ✓ Contributes to more engaged and socially aware researchers

Funding body Funded by WIMEK (WUR) and the Urban Futures Studio (UU) and Utrecht University

More information https://www.wur.nl/en/activity/transformative-research-for-sustainability-challenges.htm



Title

Make Science Halle - Citizen Research Ship

Organization implementing the initiative

Science to public e.V., Supporter: Martin-Luther-University Halle-Wittenberg, Otto - von - Guericke - University Magdeburg, Hochschule Anhalt University of Applied Science, Hochschule Merseburg University of Applied Science, Burg Giebichenstein University of Art and Design Halle

Timeframe

June 2020

Objective

The overarching goal of all partners is to involve citizens of diverse origins and age groups together with scientists in research topics of the "Blue Bioeconomy".

Barriers and challenges

Barrier: little citizen-oriented research

Challenge: Offer formats in which the universities of Saxony-Anhalt conduct collaborative research with each other and with citizens

Overview of the Initiative

As Germany's first citizen research ship, the Make Science Halle connects the region's central science (science) locations along the Blue Ribbon of Science, our river Saale. It is a converted former passenger ship, equipped with the technologies of our research partners around the topics of water, sustainability and transformation through (blue) bioeconomy.

As a floating platform with offerings that go far beyond the format of exhibitions and exhibits, she is committed to science education. It invites visitors to take expedition trips between Merseburg and Bernburg. During the workshops and events on board, she acts as a meeting place between citizens of all origins and age groups and scientists. In this way, we can enter into conversation about current research topics together. In line with our goal of "science for all and concrete participation of society in research and science", citizen research projects are implemented on board in various formats. These include regularly opened research stations below deck, where citizens can collect data on water quality, as well as afternoon activities for the whole family to explore topics related to the bioeconomy and explore the Saale together.

Target groups

Pupils, students, citizens, researchers

Level of operation

region

Activities implemented (input and process)

The Citizen Research Ship offers students from partner universities, schoolchildren and generally interested citizens various opportunities for participation and active research. These include fixed formats such as science camps, project weeks, vacation camps, excursion research trips and expeditions on the Saale as well as regular offers at fixed opening hours on land at our berth: school projects, open board door, Saale excursions, Science camps

Key results / impact of the initiative

Since 2020: 1,800 visitors to public events and events and civic expeditions on board, more than 1,900 school students to around 150 project days and workshops with schools, and more than 30 student projects took place in cooperation with partner universities, digital and hybrid formats "Research in Flux".
Nominated for Planet Hero Award 2021.

Funding body

Several

More information

https://ms-halle.science/

Title

Biofor BioP®

Organization implementing the initiative

Research center (or department, course, etc.), University, region, country.
Biofor and research centre at the Faculty of Agriculture in Zemun, Republic of Serbia

Timeframe

2019.

Objective

Science for soil protection and healthier food for civil society, Naturaly based production for environmental health improvement

Barriers and challenges

Barrier: We have witnessed that in the majority of corn crops, the "purple-reddish" color of the leaves (from the top to the base) or the whole plant has been recorded. The cause is a lack, or "blockage" of phosphorus.
This phenomenon occurs due to:

- Lack of phosphorus
- Weak microbiological activities
- Compacted soil
- Cold weather

Challenge:
Our soils are too rich in phosphorus, due to the input of mineral fertilizers and reserves of phosphorus bound to other compounds in the soil. Microorganisms supply plants with phosphorus and other macroelements. The bacterium Bacillus megaterium var. phosphaticus is an expert in supplying plants with phosphorus from the soil. Due to the reduced input of manure, our soils are increasingly poor in microorganisms, which is why the biogenicity of the soil is reduced. Our soils are more and more compacted, poorer in organic matter and more and more dusty during agrotechnical operations. At this stage, corn needs the help of microorganisms (what needed to be changed).

Overview of the Initiative

General description of the project
Everything was started through scientific projects financed by the Ministry of Science and Technological Development of the Republic of Serbia and research at the Faculty of Agriculture in Zemun. Applying scientific achievements and respecting nature, we came up with the formulations of Biofor microbiological fertilizers.
The bacterium Bacillus megaterium var. phosphaticum is an expert in supplying plants with phosphorus from the soil. As the name suggests, this bacterium is the most active mineralizer of organic phosphorus compounds and its release into the soil solution. Exactly Bacillus megaterium var. phosphaticum is the basis around which the consortium of microorganisms Biofor BioP, which are activators of phosphorus in the soil, was formed. Carefully selected strains of Azotobacter sp. which have a wide range of properties that have a stimulating effect on plant growth. In addition to supplying plants with nitrogen, Azotobacter sp as a component of Biofor BioP mineralizes and solubilizes phosphorus compounds. The formulation is also enriched with Pseudomonas putida, which is a well-characterized plant growth stimulator.

Target groups

A company specializing in research and development in microbiology. Agricultural producers. Today, their products are present on the markets of Serbia, Slovenia, Croatia and Bosnia and Herzegovina.

Level of operation

Started individual, became regional

Activities implemented (input and process)

As soon as they are introduced into the soil, microorganisms will begin intensively supplying corn with phosphorus and other macroelements. The plant will come out of dormancy in a very short period of time. The corn plant can cope with this deficiency on its own, but this process takes up to 30 days. Every day of downtime in this period of vegetation represents the danger that the corn will enter the flowering and fertilization phase later. In previous years, higher and higher temperatures were recorded in the flowering and fertilization stages of corn, which can lead to reduced fertilization and reduced yields.

In our soils, there are large reserves of phosphorus in the form of organic and inorganic compounds, however, the amounts of phosphorus that plants can absorb are small. The role of microorganisms in breaking down phosphorus compounds and converting them into plant-available forms is IRREVOCABLE.

Phosphorus is found in the soil as a component of many organic compounds (residues of plants, animals and microorganisms). By producing various extracellular enzymes, microorganisms mineralize organic compounds and lead to the release of forms of phosphorus that are available for plant uptake.

Organic and mineral phosphorus in the soil are bound by microorganisms that dissolve phosphorus. Microorganisms are an integral part of the phosphorus cycle, the main mediators of phosphorus in the soil solution. It is precisely these microorganisms that are the constituent components of the preparation Biofor BioP.

Key results / impact of the initiative

Biofor System's recommendation is the application of Biofor BioP, an expert for phosphorus. Biofor BioP is a microbiological preparation, composed of many different bacteria that are the key to supplying plants with phosphorus. Biofor BioP is recommended for soils with high and low total phosphorus content. The Biofor BioP component is also Bacillus subtilis, which is the most widely used biofungicide in the world.

Identified benefits:

Due to the reduced input of manure and the reduction of organic matter, our soils are increasingly poor in microorganisms, with reduced biogenicity. Our soils are more and more compacted, poorer in organic matter, more and more dusty during agrotechnical operations.

Funding body

Ministry of Science and Technological Development of the Republic of Serbia.

More information

http://biofor.rs/biofor-biop/

Title

BREM GROUP Ltd

Organization implementing the initiative

BREM, Beograd, Serbia

Timeframe

2006

Objective

BREM is focused on the development and application of unique bioremediation methods in order to eliminate dangerous toxic substances from the environment, primarily contaminated land, water and air.

Barriers and challenges

Barrier: Accumulations of various organic chemicals in the environment, especially in soil, are important because of their toxicity, including carcinogenicity, as well as because of their potential for bioaccumulation in living systems. Crude oil and its derivatives have a harmful effect on the living world, the structure, composition and functioning of ecological communities and ecosystems because they contain compounds that have a mutagenic and carcinogenic effect. The negative effect of oil on the flora is reflected in the reduction of the amount of oxygen, the high content of salt and dissolved hydrocarbons.

Challenge: Bioremediation is a modern method in which the natural activity of microorganisms is used to reduce the concentration of various chemical substances such as oil derivatives, industrial solvents, basic organic raw materials, pesticides, metals and metalloids.
Thanks to the metabolic abilities of microorganisms, the compounds that make up oil are food for microorganisms. Through the metabolic activities of microorganisms, oil and its derivatives are removed or decomposed into components that are not harmful to the environment and humans.

Overview of the Initiative

Bioremediation is a process that uses microorganisms or their enzymes for restoring the damaged environment to its original state, and what is particularly interesting about this method of purification is the complete degradation or transformation of dangerous organic pollutants into harmless products. Microorganisms used in the purification process can be purchased, however, they are not as effective as those already found in polluted soil and purify it naturally, but at a low speed because there are not enough of them and they are not sufficiently resistant to environmental influences. The BREM GROUP team uses microorganisms isolated from their natural habitat - polluted soil, which allows the purification process that would naturally take years to take place in a few months. Microorganisms are isolated, then selected, adapted and multiplied, forming a community (consortium) that is applied to the contaminated site. This approach enables a more natural purification process, with minimal impact on the surrounding environment.
In the bioremediation procedure, BREM GROUP uses a mobile bioreactor in which the strengthening of isolated microorganisms is carried out directly at the location where the contaminated soil is located. This innovative approach provides a few advantages and results in a quick and economically profitable cleaning of the environment. Bioremediation procedures of this type are very expensive due to the transportation of soil, its storage in special facilities and obtaining special permits for this process.

Target groups

Institute of Chemistry, Technology and Metallurgy, National Institute of the Republic of Serbia; Faculty of Chemistry, University of Belgrade; Djerdap hydroelectric power station; BREM Group, Beograd

Level of operation

Started individual, became regional

Activities implemented (input and process)

This technology solves the problem of spilled oil, its derivatives and accompanying pollutants using microorganisms at the site of pollution.
The most capable microorganisms are first isolated and selected from the polluted environment, followed by their multiplication in a mobile bioreactor, at the very place of further action of these microorganisms. The resulting microorganisms-active biomass, after multiplication and additional strengthening treatment in the Mobile Bioreactor, are returned to the contaminated field to decompose in a few months or weeks what would take several tens of years under natural conditions. This procedure enables a more natural purification process, with minimal impact on the environment.
The mobile bioreactor is part of a unique bioremediation procedure, which was fully developed by BREM GROUP within the project financed by the Ministry of Education, Science and Technological Development and has been successfully applied in practice several times.

Key results / impact of the initiative

The use of the Mobile Bioreactor to obtain immobilized microorganisms for bioremediation enables the preparation of microbial biomass at the site of contamination, which increases efficiency, reduces procedure costs and fulfills another principle defined by the Law on Waste Management (Principle of Proximity and Regional Approach to Waste Management).
In this way, it is possible to obtain microorganisms specific for each individual pollution, i.e. microorganisms designed for each individual need and user.

Identified benefits:

The mobile bioreactor is part of a unique bioremediation procedure that uses microorganisms isolated from their natural habitat - polluted soil, which makes them drastically more efficient than commercial microorganisms, bearing in mind that they are already adapted to polluting substances and thus more resistant to the conditions of the given environment.
The presented innovative approach provides a large number of advantages and results in a quick and economically profitable cleaning of the environment. The mobility of the bioreactor enables greater efficiency, as it can be quickly reacted to changes in the field, but also in case of incidents.

Funding body

Ministry of Education, Science and Technological Development of the Republic of Serbia.

More information

https://www.bremgroup.com/index.php
https://mineravita.com/gmbh/reference.php

Title

HerbELICO®

Organization implementing the initiative

University of Novi Sad, Faculty of Sciences, Vojvodina, Serbia.
HerbElixa Ltd

Timeframe

2018-2022

Objective

Science for civil society, Naturally based civil society health improvement

Barriers and challenges

Barrier: Modern medicine provides antibiotic treatment for *Helicobacter pylori* infection but they do not always lead to the desired result due to the high **resistance of** *Helicobacter pylori* **to antibiotics**.

Many patients take **multiple cycles** of a high-dose antibiotic therapy. Since these treatments have **numerous unpleasant side effects,** many patients hardly tolerate them and can often abandon the therapy altogether.
Challenge: To develop and validate high quality product that would be 100% natural and effective in treatment of *Helicobacter pylori* infection but will not cause side effects and bacterial resistance.

Overview of the Initiative

Product development is exclusively based on scientific results, primarily stemming from 10 and more years of research done by HerbElixa co-founders: three researchers and university professors dr Marija Lesjak, dr Natasa Simin, dr Ivana Beara, that already built successful careers in science. All HerbElixa products represent innovation and are unique because they are produced by our own recipes and methodologies.

Target groups

HerbELICO® eliminates H. pylori and thus leads to the loss of symptoms of the infection, such as: abdominal pain; nausea; vomiting; bad breath; bloating; fatigue; unintentional weight loss; depression.

Level of operation

Started institutional, became international

Activities implemented (input and process)

Herbal preparation HerbELICO® is a result of a seven-year long scientific research, conducted by a team of scientists, medical doctors and university professors from Serbia, Hungary and Australia, focusing on how essential oils of aromatic plants can defeat *Helicobacter pylori* (*H. pylori*). At the very beginning of the study, 14 aromatic plants (hyssop, sage, rosemary, fennel, yarrow, tarragon, basil, juniper, wild thyme, lemon balm, lavender, mint, oregano and savory), growing in the Balkan peninsula were chosen and their essential oils were isolated. The essential oils obtained were tested against *H. pylori* cultured in the laboratory. Research on laboratory animals came next. Laboratory mice were infected with *H. pylori*. Upon developed infection, mice were treated by the mixture of savory and oregano essential oils for 14 days. The treatment was successful in 70% of cases, where complete elimination of *H. pylori* was proven. The same research showed that the combined mixture of savory and oregano essential oils had no side effects: it was not cytotoxic, did not cause any immunomodulatory or allergic effects, did not alter liver enzymes ALT and AST, and did not induce expression of cytochrome P450 and heme oxygenase 1. It has been proven that HerbELICO® kills *H. pylori* almost instantly when it comes into contact with it, so that not a single live bacterium was detected after only 10 minutes of incubation. One of the additional problems that make *H. pylori* difficult to treat is that the inner wall of the stomach is lined with mucin - a layer of thick mucus into which *H. pylori* burrows and successfully hides from potential invaders. Medicines that cannot penetrate the mucin are unsuccessful in treating *H. pylori* infection.

Therefore, it was necessary to investigate whether HerbELICO® can pass through mucin. It has been proven that HerbELICO® successfully passes through the mucin barrier and kills almost all bacteria on the other side of the barrier after only 30 minutes. Based on all the obtained results, it was concluded that HerbELICO® effectively kills *H. pylori* and successfully passes through the mucin, while not exhibiting any harmful effects, which was enough for researchers to devote themselves to the development of the pharmaceutical form of the product in the next phase. The Survey included 50 users. All users had a confirmed, acute or moderate *H. pylori* infection. Ten days after the therapy started, 80% of users stated that they did not have the symptoms of *H. pylori* infection any more, whilst the other 20% of users lost symptoms by the end of the therapy. None of the users noticed any side effects during the therapy. Amongst 40 users that received the entire therapy and were tested sixty days after the therapy ended, 32 had a negative stool test regarding the presence of *H. pylori*. Based on these results, it was concluded that HerbELICO® formula is extremely effective in elimination of *H. pylori* from the human stomach, when administered alone in the prescribed dosage regimen. The success rate of HerbELICO® is estimated at 80%.

Key results / impact of the initiative

- ✓ 80% of surveyed users had successful treatment with HerbELICO® without taking antibiotics
- ✓ HerbELICO® did not cause side effects, which are common in standard antibiotic therapy
- ✓ HerbELICO® does not disturb the microflora of the gastrointestinal tract – does not require the use of probiotics
- ✓ HerbELICO® eliminates the symptoms of inflammation of the stomach lining caused by *H. pylori*
- ✓ It is easy to use HerbELICO® because it is in the form of capsules
- ✓ HerbELICO® can also be used in combination with antibiotics

Identified benefits:

HerbELICO® is biotech innovation which solved unmet health need, which is natural treatment for *H. pylori* that is effective against both antibiotic resistant and antibiotic non-resistant *H. pylori* strains and does not cause any side effects.

Funding body

While project was in early research phase it was funded by The Hungary-Serbia IPA Cross-border Co-operation Programme (EU commission).
Second research phase and commercialisation of the product was funded by HerbElixa Ltd.

More information

Source: https://herbelixa.com/herbelico-science/

Title	**Services provided by main types of ecosystems in Poland – an applied approach (Ecoserv-Pol). Poznań University of Life Sciences**
Organization implementing the initiative	Research center (or department, course, etc.), University, region, country. Leading Polish coordinator: Department of Integrated Geography Adam Mickiewicz University in Poznań, Poznan University of Life Sciences is responsible for Ecological Aspects of Ecosystem Services, co – partners are 8 other Polish institutions: Institute of Soil Science and Plant Cultivation – agroecosystems; Consortium: Forest Research Institute and Bureau for Forest Management and Geodesy – forest ecosystems; Institute of Geography and Spatial Organization, Polish Academy of Sciences – urban ecosystems; European Regional Centre for Ecohydrology, Polish Academy of Sciences – freshwater ecosystems; Institute of Oceanology, Polish Academy of Sciences – marine water ecosystems; Poznań University of Life Sciences – ecological values of ecosystem services; University of Warsaw, Faculty of Geography and Regional Studies – cultural values of ecosystem services; University of Warsaw, Warsaw Centre for Ecological Economics – economic values of ecosystem services. Donor project partner: Norwegian Institute for Nature Research (NINA) – provides us experiences from similar activities in Norway
Timeframe	2020-2023
Objective	The overall objective of this project is to achieve a better understanding and use of the ecosystem service concept at a national scale. Specific objectives: Transferring of general and specific knowledge existing in EU to the country scale; Increasing the scientific potential to assess ecosystem services; Increasing the scientific potential and the ability of administration and interested social groups to implement this approach in environmental management.
Barriers and challenges	Barrier: Ecosystem Services is well recognised concept, integrated in many international forums, agreements and as well as in EU policy documents. However, at national scale the possibility to implement it into local management practice is difficult – there is a lack of indicator set and validation of them. As a result – the concept is seldom appears in spatial planning documents, not integrated in local policies. Challenge: There is a need for an applicable set of indicators along with their validation at different scales and in different ecosystems.
Overview of the Initiative	General description of the project: Eight relevant main ecosystem types and three cross-cutting topics were selected (forest, agricultural, urban, degraded areas, fresh water and marine ecosystems and landscape related processes, horizontal topic areas; cultural, ecological and economical aspects). For all of these types, a set of indicators were identified based on published, mainly scientific material and available data. These indicators were tested and assessed via three case studies. Assessing data availability, and identification of significant ES synergies and trade-offs and relevant ES bundles are important elements of this stage. The project results are communicated to interested stakeholders through informing the media about the project and its practical social and ecological values; organizing the meetings for administration representatives and expert-practitioners; presentations of project results at conferences as well as in scientific publications; providing information about the project and its results on the project website.

Target groups	The potential target groups of this project are: 1. Scientists – by increasing the capacity of the Polish researchers dealing with main ecosystems to develop ecosystem services (ES) approach; 2. Administration on the regional and local levels and experts-practitioners – by developing officials' awareness of the potential of ES approach from the political, social and ecological point of view, as well as will building their skills for including ES assessment into process of environmental management; 3. Interested social groups, including activists – by increasing their awareness of the benefits obtained through the proper management of ecosystems.
Level of operation	Individual, department, faculty, institution, city, region, country, international The leader of the project is prof. Malgorzata Stępniewska, leader of ecological values is Prof. Piotr Tryjanowski. All participant organisations are working at country scale, the Norwegian partner gives aspects of international experience.
Activities implemented (input and process)	Indicator selection for the main ecosystem types and critical reviews of scientific literature for cultural, ecological and economical aspects of ecosystem services concept; Three case studies; data collection for these indicators, mapping indicators, identifying synergies and trade offs; Organising 12 workshops for stakeholders – mainly for people involved in spatial planning and municipal employees.
Key results / impact of the initiative	Indicator set with the publicly available data sources; Demonstrating the potential use of these indicators during case studies; Disseminating results towards decision makers; Preparing a practical handbook on ecosystem mapping
Identified benefits:	Ecosystem service maps for Poland; Methods for Ecosystem Service assessment and monitoring (datasets, availability, described and tested indicator set); Partnership with stakeholders and spreading information on ecosystem service concept; Impact on stakeholders involved in the workshops
Funding body	Iceland, Lichenstein, Norway Grants, EOG 2024-2021
More information	Source: http://geokompleks.amu.edu.pl/en/project-services-provided-by-main-types-of-ecosystems-in-poland-an-applied-approach/

Title

Linking farmland biodiversity to ecosystem services for effective ecological intensification (acronym LIBERATION). Poznań University of Life Sciences

Organization implementing the initiative

Research center (or department, course, etc.), University, region, country.
The project was led by Professor Klein, University of Wageningen, in Poland elements of the project results are integrated into the curricula of two university units; Zoology Department (Faculty of Veterinary studies and animal sciences) and department of Agronomy (Faculty of Agronomy and Biological Engineering

Timeframe

2013-2017

Objective

The overall goal was to provide the evidence base for ecological intensification and demonstrate the concept in seven representative agricultural landscape types in EU. Thus our goal was to synthesize management and policy recommendations, concerning ecological intensification in agriculture.

Barriers and challenges

Barrier: The next few decades will witness a rapidly increasing demand for agricultural products. This growing demand needs to be met largely through intensification (produce more from the same land surface) because there is little scope for an increase in agricultural area. Ecological intensification has been proposed as a promising solution.
Challenge: Ecological intensification has been proposed as a promising solution. Ecological intensification is the optimization of all provisioning, regulating and supporting ecosystem services in the agricultural production process. LIBERATION aimed to provide the evidence base for ecological intensification and demonstrate the concept in seven representative agricultural landscape types in Europe.

Overview of the Initiative

Using existing datasets from past and on-going European-scale studies we first identified general relationships between the configuration of semi-natural habitats, on-farm management and biodiversity in a range of European landscapes and farming systems. Using a modelling approach we attempted to link biodiversity and ecosystem services, by determining relationships between biodiversity, the delivery of multiple ecosystem services and agronomic yield.
A novel aspect is that the project considered above- and below-ground ecosystem services simultaneously, and analyzed synergies and trade-offs between different ecosystem services. Using this modelling approach we explored, which on-farm management practices and spatial configuration of semi-natural habitats optimizes yield and which optimizes farm income.

Target groups

Via raising awareness and promote uptake of ecological intensification by disseminating project results to the widest possible range of stakeholders, amongst others by means of demonstration projects.
Apart from this, the aim was to target EU level policy makers as well via specific recommendation containing the essence of our results.

Level of operation

The project was carried out by an international consortium, with the contribution of

Activities implemented (input and process)

Investigated general trends in agricultural biodiversity and ecosystem services in relation to multiple environmental drivers while taking into account large-scale geographic variation. Secondly, we quantified the individual contributions, and their trade-offs, to agricultural production, of multiple ecosystem services. Thirdly we attempted to quantify the impact of different promising

mitigation measures for enhancing ecosystem services.
With the help of modelling we estimated spatially explicit production functions that consider the impact of landscape structure on flows of supporting ecosystem services (i.e. pollination, biocontrol and soil fertility) and ultimately on yields of the major crops grown in each of the case-study landscapes.
Quantified socio-economic implications of eco-functional intensification (Examined effects of ecological intensification on farmers profits; Analyzed income volatility over time in relation to biodiversity and ecosystem services, and survey farmers' perspectives and attitudes towards mobilization of on-farm ecosystem services
Finally, environmental and policy management implications were assessed, via evaluation of the results obtained in earlier stages of the project. As a main result, policy recommendations on appropriate rate of semi-natural habitats and farm management practices were formulated.
As a part of dissemination activity, workshops with local stakeholders were hold.

Key results / impact of the initiative

Project results provided evidence on possibilities and burdens of ecological intensification. In detail, our experiments and analyses resulted in a with wide range of information; ecological processes, management practices influences, crop yield dependence from ecosystem services, farmer's attitudes, and land used scenarios.

Identified benefits:

All aspects of the project gave novel and necessary information for eco-functional intensification, that provide scientific evidence for Common Agricultural Policy, or several programs dealing with ecosystem services or nature conservation.
During the dissemination events, results were communicated towards agricultural advisers and farmers, moreover, there is an ongoing integration of ecological integration into the curricula of agronomical studies.

Funding body

EU-FP7 research mechanism.

More information

Source: http://www.fp7liberation.eu/

Title	**Co-operation between PULS and a private company (ENINA) on minimising the impact of green energy investments on nature. Poznań University of Life Sciences**
Organization implementing the initiative	Research center (or department, course, etc.), University, region, country. It is a business collaboration between ENINA and Department of Zoology (Faculty of Veterinary Medicine and Animal Sciences)
Timeframe	2011-ongoing
Objective	To find theoretical concept for green energy (wind plants, solar panels) localization in agricultural landscape.
Barriers and challenges	Barrier (what is the actual problem) Polish law is rather conservative and not very open for new technologies (from environmental point of view) Challenge: (what needed to be changed) We aimed to provide the evidence base impact of green energy on plants and animal communities.
Overview of the Initiative	Collecting data in the field before infrastructure localisation Environmental assessment analyses BACE – before-after-comparisons for some projects
Target groups	Local governments Environmental agencies NGOs (nature conservation) General public (it is a strong discussion in Poland on this subject)
Level of operation	Individual, department, faculty, institution, city, region, country, international Department
Activities implemented (input and process)	Field studies Data analyzing Popularization of the results
Key results / impact of the initiative	At least 50 environmental assessments Popular publication – co-authored by both sides – 5 Peer-review publication – 1 (some more in preparation)
Identified benefits:	During the dissemination events, results were communicated towards agricultural advisers, moreover, there is an ongoing integration of ecological view into electrocompanies.
Funding body	Private company – ENINA, but also other companies from green energy asked for environmental impact assessments
More information	Source: https://www.enina.pl/

Title	**Ecological and socioeconomic thresholds as a basis for defining adaptive management triggers in Latvian pond aquaculture**
Organization implementing the initiative	Ecology Department of Life Science and Technology Institute of Daugavpils University, Latvia
Timeframe	2021-2025
Objective	To ascertain of pond aquaculture ecological and socioeconomic thresholds and triggers by using environmental & socio-economic performance modelling and Multi-Actor Reference Groups (MARG) for environmental and sustainability governance guidance.
Barriers and challenges	Barrier: The multifunctional character of pond fish farming has been recognized for long time; however, recently it has also been realized that the deliberate multidirectional use of fish ponds (production, angling, recreation, education, etc.) offers additional economic benefits [1]. Freshwater pond fish culture in Latvia is a specific segment of aquaculture that has always been closely linked to rural life and has inseparably combined the social, ecological and economic dimensions of fish farming activity. Biodiversity loss and climate change are the biggest environmental threats we face today. To address such crises, the EU has set in place a series of climate and environmental objectives as part of the European Green Deal [2]. To provide more space for nature, at least 10% of agricultural area should be transformed into high diversity landscape features by 2030 in order to provide space for wild animals, plants, pollinators and natural pest regulators [3]. Challenge: Ecological thresholds can play an important role in environmental assessment, they are not a simple solution to complex socioecological decisions, nor do they ensure objective decision making [4]. In order to make preservation of the biological integrity of ecosystems, the preservation of key biological – ecological thresholds are suggested, they represent an operational, measurable entity inspired by contemporary trends in biological conservation, offering key indicators in design sustainability policies [5].
Overview of the Initiative	General description of the project Project central idea was developed by using the *triple bottom line* (TBL) approach [6] and the concept of *ecosystem services* (ESS) [7]. Due to the abrupt change, referred to as a threshold crossing, can be triggered by one or more interactive disturbances such as land-use activities and climatic events, the pond aquaculture research includes not only the study of aquaculture practices but also horizontal integration of socioeconomic triggers. According to the Threshold concepts used in our research simultaneous interdisciplinary studies will be provided in Aquaculture and Socioeconomics, and include research of innovative aquaculture practices, novel early detection of biological invasions in pond aquaculture, and state and transition modelling (STM) of thresholds in ecological and social-ecological systems.
Target groups	Multi-actor reference group (MARG) including farmers, agriculture specialists, citizen scientists, academic personal, local and national level agriculture managers.
Level of operation	Individual, department, faculty, institution, city, region, country

Activities implemented (input and process)

1. Multi-actor approach. To provide Multi-actor approach establish MARG and ensure monitoring of comparability amongst Case studies.

2. Threshold components. To define threshold characteristics and behaviors by identifying threshold components: triggers, feedback mechanisms and switch.

3. Modelling & synergy. To model pond aquaculture environmental & socio-economic performance opportunities and threats in climate and social events context to determine threshold occurrence, trajectory of the post-threshold state, and threshold reversibility.

4. Policy recommendations. To develop web-based interactive Environmental and Sustainable Governance (ESG) guidance through policy analysis & recommendations for the fisheries bioeconomy sector in Latvia.

5. Communication and dissemination. To ensure an efficient and effective communication and dissemination of knowledge generated in the project using a variety of media and methods as appropriate for the different actors and target audiences, including the MARG, and to develop web-based interactive Learning environment for youth involvement in decision-making around aquaculture management and governance.

Key results / impact of the initiative

The preliminary research had shown that there is a lack of knowledge and understanding about pond aquaculture ecological and socioeconomic thresholds and triggers role in Latvia pond aquaculture sustainability. Therefore, the results of the project will have a significant impact on the development of knowledge of municipal authorities, decision-makers, pond aquaculture farmers and other groups of society, e.g. public administration, landowners, etc. interested in the water management.

In order to deepen the public knowledge and understanding of issues related to pond aquaculture system adaptive management web-based interactive ESG guidance will be developed.

In order to attract and promote the interest of young people and other groups concerned regarding the Project information and results the web-based interactive Learning environment for youth involvement in decision-making around aquaculture management and governance will be developed.

The visibility of the project will be increased with a **specific web page for the Project** with all available public information and the latest updates.

Identified benefits:

In order to raise citizens' awareness on potential impact over climate change mitigation in pond aquaculture and reflect the impact of the research funding on Latvian economy, **general public will be informed by news** in the media (newspapers, magazines, radio, TV etc.).

Funding body

Project was funded by the Latvian Council of Science (LCS).

More information

Source: https://du.lv/projekti/

Title	**A socio-ecological evaluation of wetlands restoration and reintroduction programs in favour of the emblematic European pond turtle and associated biodiversity: a pan-European approach (EMYS-R)**
Organization implementing the initiative	Ecology Department of Life Science and Technology Institute of Daugavpils University, Latvia
Timeframe	2022-2025
Objective	Emys-R is a 3-year participatory action-oriented research project aiming at defining the most effective, socially supported, ecological methods to restore wetlands in favour of the European pond turtle reintroduction, and associated biodiversity throughout Europe.
Barriers and challenges	Barrier: Habitat restoration and reintroduction of threatened species are considered to be an operational strategy for limiting biodiversity erosion [1-2] and for reconnecting people to nature [3], and therefore can also be considered promising to reduce economic costs. Yet habitat restoration and species reintroduction programs are generally implemented on small scales both in time and space, thus limiting a proper assessment of their actual impact and efficiency at the global scale. Challenge: The success of species reintroductions depends on two major components: from an **ecological** point of view, the major challenge is to provide a natural, usually restored, habitat suitable for hosting individuals raised in captive, usually highly artificial, conditions where their natural capabilities to survive and breed in the wild might have been depressed. From a **sociological** point of view, the major challenge is to make stakeholders, and particularly citizens, understand and accept such usually expensive actions. These challenges echo concerns of present and future local, national and EU public policies about making people active participants in decision makings regarding their land, natural resources and patrimony. In the case of the emblematic Emys that only lives in wetlands, a natural habitat suffering misperception by people, expensive initiatives of habitat restoration may lead to conflicts of interests and other factors influencing social acceptance of such actions.
Overview of the Initiative	General description of the project: EMYS-R proposes to consolidate an existing international network of interdisciplinary experts from France, Germany, Latvia, and Poland, who already work in close relation with stakeholders and land managers around 3 themes: wetland restoration and Emys reintroduction; social and economic aspects of environmental issues and stakeholder engagement and policy analysis.
Target groups	Multi-actor reference group (MARG) including farmers, agriculture specialists, citizen scientists, academic personal, local and national level agriculture managers.
Level of operation	Individual, department, faculty, institution, city, region, country, international.
Activities implemented (input and process)	1) investigate the ecological processes improving wetland restoration and Emys reintroduction based on a) a focus on habitat recovery after restoration using biocenotic indices; b) a focus on Emys by monitoring

reintroduced populations and their impact on other species using state-of-the-art biologging and eDNA.
2) assess tradeoffs and synergies between targets, benefits and policies, with a) an ecological focus on nontarget species (threatened amphibians and invasive crayfish); b) a socio-economic focus on value benefits of restoration, people's perception of restored nature, citizen science and deliberative processes involved in multi-stakeholder decision settings related to nature conservation.
3) ultimately produce guidelines for optimal wetland restoration protocols in favor of Emys reintroduction and people engagement in nature conservation based on a) our integrative approach, b) a review of past and current results, and c) a new model forecasting near future distribution and abundance of Emys at the European scale. This very first integrated analysis of socio-ecological processes in degraded wetlands will lead to socially supported, effective wetland restoration in favor of emblematic Emys and associated local biodiversity throughout Europe.

Key results / impact of the initiative

The Project will study 3 major socio-economic sectors: economic benefits of wetland restoration, public perception and use of nature and wildlife, and shared knowledge between experts and stakeholders through academic and citizen science: 1) The economic sector will be addressed by assessing the value benefits of wetland restoration using an "adapted" Habitat Evaluation Procedure (Task4.1), developed within our consortium that values environmental benefits through a non-monetary metric, namely the habitat unit. Habitat unit evaluates marginal environmental changes using ecological instead of economically defined indicators and illustrates the added value of our interdisciplinary approach.
2) The sociological sector will permit to assess the values of nature given by citizens (Task4.2) that motivate people. to support and/or to engage themselves in conservation actions (Task4.3) and to evaluate how citizens knowledge and involvement can improve academic knowledge and contribute to decision making (Task4.4). 3) In the knowledge transfer sector, EMYS-R will expand knowledge dissemination and transfer between academic experts and stakeholders throughout Europe, in order to identify best practices that promote non- expert, and particularly citizen's contribution, to decision making in environmental policies.

Identified benefits:

EMYS-R project will **provide the first integrated analysis of EU funded projects focusing on wetlands restoration for Emys reintroduction throughout its pan-European distribution**. This will lead to developing a common monitoring and experimental design that will be implemented during the project by all partners on their study sites. We will identify the best measures to be used from an integrated ecological, economic, social and stakeholder point of view for decision makers, including citizens willing to participate or already engaged, in similar conservation projects throughout Europe.

Funding body

Emys-R is funded through the 2020-2021 Biodiversa & Water JPI joint call for research proposals, under the BiodivRestore ERA-Net COFUND programme, and with the funding organisations Agence Nationale de la Recherche (ANR, France), Bundesministerium für Bildung und Forschung (BMBF, Germany), State Education Development Agency (VIAA, Latvia), and National Science Center (NSC, Poland).

More information

Source: https://emysr.cnrs.fr/

Title

Optimal strategies to retain and re-use water and nutrients in small agricultural catchments across different soil-climatic regions in Europe (OPTAIN)

Organization implementing the initiative

Life Science and Technology Institute of Daugavpils University, Latvia

Timeframe

2020-2025

Objective

The general objective of the OPTAIN project is to identify efficient and easy-to-implement techniques for the retention and reuse of water and nutrients in small agricultural catchments across three biogeographical regions. **Together with local actors,** OPTAIN aims at selecting and optimizing the spatial allocation of retention measures and their combination at the farm and catchment level with respect to their environmental and economic sustainability.

Barriers and challenges

Challenge: Establishment and regular work facilitation of multi-actor platforms (MAPs) in each case study. Providing communication techniques to encourage active stakeholder involvement. Establishment and maintenance of the multilevel stakeholder networks covering different levels of decision-making, from local closely engaged (involve, collaborate, educate) interest groups to higher administrative authorities at national and European level (inform, consult). A stakeholder mapping showing which interest groups are affected at the catchment level and which authorities are responsible for defining regulations and incentive systems to steer the implementation of measures at the local level. MAPs connections with national/regional EIP AGRI Operational Group's projects to transfer knowledge from science to farmers.

Barrier/Risks: As a core element of OPTAIN, MAPs are linked to every WP to ensure that research conducted in each case study addresses regional, local and small catchment scale problems and their unique characteristics and that stakeholder establish a sense of "co-ownership" for the solutions developed and tested within the project. To facilitate knowledge, transfer into practice, "science-policy-practice" workshops will be held in each case study region where project findings and training tools (WP7) will be presented and discussed with local stakeholders and "multipliers", such as farmers' extension services.

Overview of the Initiative

General description of the project: Natural/Small Water Retention Measures (NSWRMs) can help mitigate the conflicts between agricultural water uses (e.g. plant production, animals) and other human and environmental demands for water, including drinking water or maintaining environmental flow – this will significantly contribute to a more resilient agriculture and society. Despite a comprehensive set of techniques available to increase water retention on both catchment and farm levels, knowledge is still lacking on the effectiveness of different scale- and region-specific measures. Identification of efficient techniques/measures will be done **in close cooperation with local actors** and based on environmental and economic sustainability indicators. All gained knowledge will be translated into a learning environment allowing analysis of trade-offs and synergies between multiple values/goals in the management and design of NSWRMs.

Target groups	Establishment and running of so called **Multi-actor reference group** (MARG), based in the Dviete river catchment area (case study area) and including local municipalities, nature and water protection agencies, farmers and agriculture specialists/advisors, academics, local/community and regional/national level NGO's (professional and societal)
Level of operation	Individual, department/faculty, institution/university, city, Dviete river catchment area, region, country
Activities planned and step-wise implemented (input and process)	Establishment of Multi Actor Reference Groups (MARG) and key engagement activities; Guidance for effective actor engagement. The aim of this task is to train and guide CS Leaders, WP Leaders and **MARG Leaders** to coordinate and support the role of the **multi-actor approach** in the planning, execution, evaluation, and dissemination of the work in the different work packages of the OPTAIN project. The CS/MARG Leaders will organize these possible engagement activities. Examples of themes are: (i) Local environmental issues and identification of existing and potentially suitable NSWRM (WP2); (ii) Initial assessment of selected NSWRM, including economic aspects, environmental efficiencies, practicability and definition of actor-based scenarios (WP2); (iii) Presentation & discussion of modelling results addressing single measures, climate change and actor-based scenarios (WP4); (iv) Presentation & discussion of the results of optimizing the allocation & combination of measures at catchment scale, followed by the identification of preferable solutions (WP5); (iv) Policy aspects and derivation of recommendations for action (WP6).
Key results / impact of the initiative	The advantages and new opportunities of OPTAIN's approach to evaluate and explore NSWRMs effectiveness will become openly available. OPTAIN develops ground-breaking innovation in implementation of NSWRM, building on state-of-the art technologies and methods in agriculture and water sector. Co-creation within and outside of OPTAIN project will strengthen the scientific and expert communities and enhance their innovation capacity for finding synergetic solutions. Increased implementation of the technologies developed and tested in OPTAIN will increase water and nutrient availability and use efficiency, safeguard agricultural ecosystems and incomes, and strengthen rural areas in the long term. Natural/Small Water Retention Measures (NSWRM) used in agricultural catchments can improve water and nutrient management and increase the sustainability of the agricultural production.
Identified benefits:	OPTAIN aims to increase acceptance and better implementation of natural, small, and underutilized retention measures by showing under which weather/climate conditions, on which scale (field/catchment), on which location in the catchment and in combination with which other measures NSWRM perform best, considering environmental but also socio-economic indicators. This shall be realized in each case area and close and regular (at least annual) working partnership with MARG of local and regional stakeholders.
Funding body	Project was funded by the Horizon 2020 – the Framework Program for Research and Innovation (2014-2020) - grant agreement No. 862756
More information	Source: https://optain.eu/

Title	**Social engagement within the FRAME Erasmus+ project**
Organization implementing the initiative	Chiang Mai University, Forest restoration and research unit
Timeframe	15. 11. 2020 – 14. 11. 2023
Objective	The main objective is to strengthen the forest-related higher education system in Laos and Thailand by improving accessibility an internationalisation of the curricula of the partner institutions by supporting the development of new learning and teaching tools including massive online open courses and open source ICT tools. Specifically in relation to sustainable forest management, restoration, and rural livelihoods. To enable this, the project partners develop new courses, including MOOCs and other open course to general public.
Barriers and challenges	Barrier: cultural differences between EU and South-East Asian partners Challenge: develop courses and curricula attractive to future university students, identifying the right hard- and soft skills to be taught, meeting the material needs of the partner institutions
Overview of the Initiative	The project is based on multi-level cooperation that mobilizes and links organizations at various geographical and institutional levels – North-South (EU to Laos and Thailand), South-South regional (Thailand-Laos), and South-South domestic (Lao-Lao, Thai-Thai). The cooperation on these levels brings a unique mix of tools that can be used to achieve the goals of the initiative (project). The project considers the needs of local practice, identified within the needs assessment workshops and related reports. The partners then collaborate with said employers who provide internship opportunities at their facilities. In turn, the employers can affect the educational process, thus achieving better alignment of their future workforce. Project outputs are disseminated through electronic means – social media, websites (project and partners), and participation at events such as workshops, capacity building activities, fairs and expos.
Target groups	general public, employers, university lecturers, university students, secondary school students and more
Level of operation	Local, country, international
Activities implemented (input and process)	Multi-level cooperation approach that mobilizes and links organizations at various geographical and institutional levels: North-South (EU-Laos & Thailand), South-South regional (Laos-Thailand), and South-South domestic (each regional HEIs, expanding and decentralizing the higher education system); Multidisciplinary, holistic educational approach: going way beyond traditional production forestry and building the integrative competence and diverse capacity needed for the Laos and Thailand's forest and environmental development. This allows an effective participation of Partner Countries in current and future key global forest-related processes, such as the SDGs, the Paris climate agreement, Bonn challenge etc.; A bi-national academic approach on the basis of credit transfer and curricular exchange: HEIs will be supported to increase academic complementarity and effectively manage academic overlapping according to their existing regional and thematic strengths and needs. Teacher's mobility will

be encouraged particularly for the benefit of the rural regions. Parallel to this, the Partner HEIs will work towards facilitating the mutual recognition of credits at the national and regional level; Orientation to job markets: In contrast to other initiatives, this project is oriented to satisfy actual societal needs for well-qualified academics while also investing in guaranteeing future employment of graduates. This will be done by establishing relationships with a range of public and private sector stakeholders, bringing in expert trainers, creating and fostering opportunities for traineeships, and facilitating links to employers; As Thailand HEIs are well developed compared to Lao HEIs, expertise of Thai HEIs will be used to develop Lao partner HEIs curriculum on forest restoration and sustainable forest management.

Key results / impact of the initiative

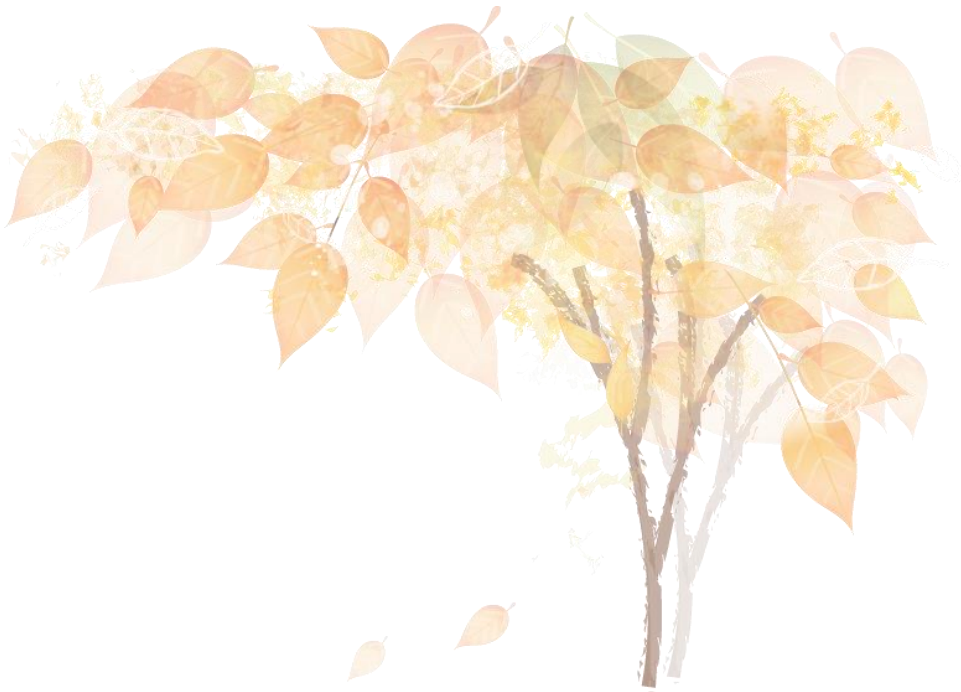
Several curricula improved; new, up-to-date study programs developed; new and improved HEI courses that tackle climate change and local livelihood improvement; several Massive online open courses developed intended for large audiences, including professionals and general public; engagement of the public in Laos and Thailand in forest restoration through social media, workshops and collaboration in forest restoration.

Identified benefits:

Improved skillsets of graduates; Improved cooperation between higher education institutions; Improved cooperation of higher education institutions and practitioners.

Funding body Erasmus +

More information https://frameerasmus.eu/en



Title	**Social engagement within the RESONATE project**
Organization implementing the initiative	European Forest Institute, Bonn office
Timeframe	1. 4. 202. – 31. 3. 2025.
Objective	To provide research and advice to improve the resilience of European forests and associated value chains.
Barriers and challenges	Barrier: little to no knowledge in the field of forest resilience among many stakeholder groups, little to no ownership of the solutions, differing alignment of the numerous stakeholder groups present Challenge: aligning the stakeholder groups to foster forest resilience, to persuade stakeholder groups that resilient forests are a solution to the challenges before European forests, introducing evidence-based policies and data-driven management practices into European forest bioeconomy.
Overview of the Initiative	Following RESONATE's communication principle "to go where the audience lives", stakeholder engagement plays an important role in the project. The aim is to increase awareness amongst decision makers from policy, industry and forest management, and the public, and to make sure that the project finds answers to their real-life problems. Therefore, we involve many stakeholders to share their experiences and knowledge throughout the entire project duration.
Target groups	Scientific networks, education actors, forest owners, extension services, forest-based industry, policy makers, society and media
Level of operation	National, international
Activities implemented (input and process)	RESONATE will provide best practice examples and tailor-made solutions to all stakeholders concerned with forests, thus delivering recommendations that can be applied in real world settings and daily decision making. The project's initial communications will focus on raising awareness of the importance of adapting forest value chains to the challenges posed by climate change and natural disturbances in Europe, together with informing about the project, its aims and objectives. Towards the final years of the project, communications (and knowledge exchange activities) will be more dedicated to sharing project results, and their impacts, as well as encouraging the adoption of project tools. We will also address policy makers at national/European level to share the recommendations developed in the project – particularly via the policy briefs. Initial plans for target audiences, key aims/messages and the tools to be used can be seen in the table below and will be adapted in the course of the project. Stakeholder group representatives will be mobilised on a twofold level. At a regional scale (e.g. Task 3.2 interviews and surveys will target regional actors from the case studies, including forest owners and various value chain representatives) and at the European level (e.g. Task 6.2 set-up of a Stakeholder board, whose inputs will be distilled in a series of high-level workshops), the engagement will further support the identification of crucial needs and inform the development of the most effective key

messages for target audiences. In addition, these activities will help to identify the most suitable channels for communication with stakeholders.

Key results / impact of the initiative

Target groups will be approached by a multitude of tools aimed specifically at those audiences.

Researchers and students – resilience learning modules, scientific publications, proceedings and presentations, seminars, website, social media

Forest owners – workshops, events, surveys, practitioners' magazines, e-newsletters (with an audio version accompanying the written form), decision support tools

Forest industry – stakeholder consultations, fact-sheets, website, social media, blogposts, leaflets, videos

Policy makers – stakeholder consultation, resilience dashboard, social media, policy briefs, policy events

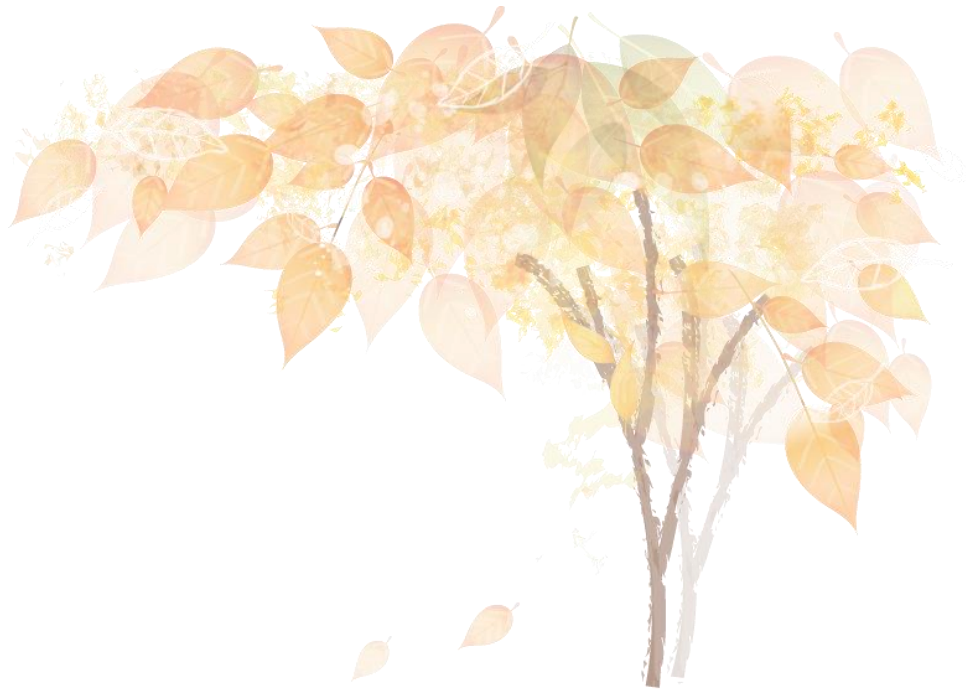
Media, society – website, social media, articles in media, press releases, RESONATE storylines

Identified benefits:

- ✓ Improved knowledge, skills, and competencies of students and educators,
- ✓ Improved knowledge transfer in manifold directions,
- ✓ Engaged stakeholders, with a perceived ownership of the solutions to the forest resilience problem
- ✓ Data-driven value chain management
- ✓ Evidence-based policies

Funding body Horizon 2020

More information https://resonateforest.org/



Title	**Huntour Easmus+ project social engagement (Development of education in relation to the influence of ongoing climate change to hunting tourism)**
Organization implementing the initiative	Czech University of Life Sciences, Prague, Czech Republic
Timeframe	1. 9. 2020 – 31. 8. 2023
Objective	The main objective of the project is mainly to create educational materials for subsequent decision-making direction of the development of hunting tourism in the European Union countries.
Barriers and challenges	Barrier: different hunting legislation in countries Challenge: trying to count economic impact of hunting tourism in different countries
Overview of the Initiative	Only systematic collection of materials, comparison on a uniform basis can lead to the subsequent creation of a strategic development plan in a given area. Higher education of future professionals who will decide in the future on the development of hunting tourism is a key prerequisite for the correct solution of this area. Only if they are familliar of the rural environment, the possibilities for developing hunting tourism, the economic, environmental and social consequences of their decisions they will be able to move the sector into the right direction.
Target groups	hunters, students of environmental studies, public
Level of operation	country, international
Activities implemented (input and process)	1. Offer a unique educational package for universities to start educate students in hunting tourism (multilanguage dictionary, case studies, best practise guideline, textbook about hunting tourism in English and other partnership languages) 2. Fostering creativity and innovative learning practices and environments by enhancing hunting tourism knowledge 3. support for the development of hunting tourism strategies and methodologies 4. Facilitate access for both students and hunting communities/authorities to important open educational resources 5. Spread the importance of hunting and hunting tourism to the general public
Key results / impact of the initiative	1. Offer a unique educational package for universities to start educate students in hunting tourism (multilanguage dictionary, case studies, best practise guideline, textbook about hunting tourism in English and other partnership languages) 2. Fostering creativity and innovative learning practices and environments by enhancing hunting tourism knowledge 3. support for the development of hunting tourism strategies and methodologies 4. Facilitate access for both students and hunting communities/authorities to important open educational resources 5. Spread the importance of hunting and hunting tourism to the general public
Identified benefits:	✓ Level of cooperation, ✓ Data gathering

Title	**Wood Camp**
Organization implementing the initiative	ADMD - Association of companies building houses assembled from wood, Brno, Czech Republic
Timeframe	All the time (periodically)
Objective	Wood Camp is a project which organizes periodically activities to increase the professional knowledge of targed groups in wood construction.
Barriers and challenges	Barrier: lack of actual information among experts Challenge: rise the quality and motivation of the community working in wooden construction at a state level
Overview of the Initiative	Wood Camp is a project that includes regular seminars for target groups, which teach how to start designing and projecting wooden buildings. At the same time, within this platform, target group will get contact with experts on individual topics.
Target groups	Designers, architects, construction supervisors
Level of operation	Individual, department, faculty, institution, city, region, country, international
Activities implemented (input and process)	Every three weeks seminars are organized (online) and once a year a big conference takes place.
Key results / impact of the initiative	Building the comunity of companies involved in wood construction industry / sector.
Identified benefits:	✓ Network ✓ Increasing of the knowledge of the members of the professional comunity
Funding body	ADMD intself
More information	https://www.admd.cz/woodcamp

Title	Supporting people in business development
Organization implementing the initiative	JIC, South Moravian Innovative Center, South Moravian Region, Czech Republic
Timeframe	All the time
Objective	The creation of an innovation ecosystem in the South Moravian region with the aim of supporting innovative approaches between organizations.
Barriers and challenges	Barrier: lack of innovative companies Challenge: increase of the innovative potential in region with new research infrastructure
Overview of the Initiative	The goal is to build an open and self-confident company supporting an innovative environment in which it is a pleasure to do business, work and live. This is the common goal of scientists, innovators, entrepreneurs, politicians, managers and everyone who participates in the development of the region and who make up the innovation ecosystem.
Target groups	Innovators, entrepreneurs, scientists, politicians, managers, etc.
Level of operation	region, country, international
Activities implemented (input and process)	The JIC provides guidance, finance, education, contacts, premises and other cooperation.
Key results / impact of the initiative	✓ 300 clients in the last 10 years ✓ 52 clients whose turnover exceeded 50 million in the last 3 years ✓ 112 clients in the JIC business network ✓ 4,860 hours spent by experts with clients
Identified benefits:	Increase of the regional potential.
Funding body	JIC from sources of their partners
More information	https://www.jic.cz/en/

Title

Identifying options for reducing bee mortality

Organization implementing the initiative

Estonian University of Life Sciences, University of Tartu, National Institute of Physics and Biophysics

Timeframe

2019-2021

Objective

To determine, in collaboration with bee-keepers and other land-users the causes that lead to decline in numbers and species richness of bees (including managed honeybees and common species of wild bees in Estonia) and to elaborate practical suggestions for enhancing their conditions

Barriers and challenges

Barrier: great diversity of drivers and environmental variable (including those related to the diversity of agricultural landscapes) that may cause the increased mortality of bees.

Challenge: blending the scientific knowledge and the knowledge of practitioners to improve the understanding of the drivers and environmental variables.

Barrier: great uncertainty and variety of side effects related to the application of various solutions preventing the increased mortality of bees.

Challenge: creating a science-practitioner interface to discuss the validity and effectiveness of proposed solutions.

Overview of the Initiative

Most habitats of wild bees are located in landscapes that have been influenced to different degrees by agriculture. Some of the proposed causes for decline in pollinators' abundance and species richness are considered to be the expansion of monocultures due to intensive agriculture and the use of agrochemicals (fertilisers and pesticides). This research was trying to blend traditional knowledge of bee-keepers and other land-users and scientific academic knowledge in order to improve understanding of the process of the decline and to propose solutions addressing it (including on the impact of pesticides and possible protective measures). For this bee-keepers we consulted on the stage of the research design and actively involved to interaction and discussion of research results for all the further steps. In particular, out of 1439 bee hives registered in Estonia, 196 hive owners have been randomly selected and approached. The interaction was arranged through interviews and structured discussions.

Target groups

Researchers, policy-makers, agricultural land-users

Level of operation

Regional

Activities implemented (input and process)

- ✓ Research: literature reviews (for environmental drivers, effects of pesticides, ecology of wild bees in comparable landscapes); review of the outcomes of EU funding; research of collaborative design to collect, deploy and disseminate traditional knowledge.
- ✓ Co-design of research and interactive collaboration for making sense of the outcomes and identifying solutions for pollinator-friendly agriculture.

Key results / impact of the initiative

- ✓ User knowledge integrated to the scientific knowledge
- ✓ Established science-practitioner interfaces for discussions research results and identifying solutions

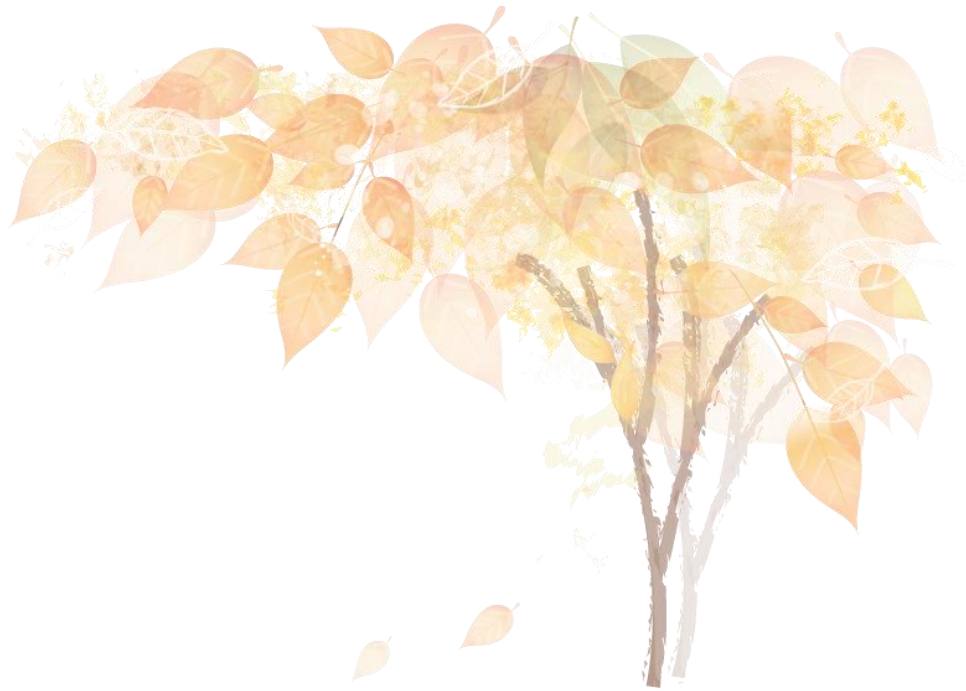
- ✓ Better understanding of the factors influencing pollinators' abundance and species richness, factors affecting honeybee (Apis mellifera) abundance, including its pathogens and parasites, and of lethal, sublethal, indirect, and direct effects of pesticides on bees' health

Identified benefits:

- ✓ Traditional knowledge valorised
- ✓ Sets of proposed solutions gained better legitimacy through the inclusive process
- ✓ Improved scientific knowledge of fee lethality and effects of pesiticides in various landscapes
- ✓ Promotion of collaborative methods in ecotoxicology and veterinary research

Funding body Eesti Teadusagentuur

More information https://www.etag.ee/wp-content/uploads/2022/04/RITA-Forbee-lopparuanne-aprill-2022.pdf



Title	**VivaGrass Project**
Organization implementing the initiative	Baltic Environmental Forum (Estonia, Latvia, Lithuania), municipalities and farms in Estonia, Latvia and Lithuania; universities in the 3 countries
Timeframe	2014-2019
Objective	to prevent loss of High Nature Value grasslands and increase effectiveness of semi-natural grassland management by developing the Integrating Planning Tool (Tool). The tool based on ecosystem services approach helps to strengthen linkages between social, economic, environmental, agricultural fields and policies in grassland management.
Barriers and challenges	Barrier: low awareness of land-users and broader public of the full values of grasslands, and about the solutions combining economically viable management and conservation objectives Challenge: to identify the missing gaps, and to find the most suitable channels to provide scientific and praxis-oriented knowledge in a way that it can be directly used by end-users, as well as to provide access to information and data supporting the knowledge Barrier: limited use of local knowledge and values in spatial planning and management schemes Challenge: identifying and deploying an appropriate range of communication tools to collect local knowledge, as well as meaningfully blending it with scientific knowledge
Overview of the Initiative	The project is addressing the set problems via a concerted set of actions combining (2) the development of framework, databases and IT application for easy access to the information on ecosystem services and their sustainable use, (2) participatory deliberation with stakeholders, and owners of selected case studies (farmers, managers in municipalities and protected areas) in order to understand their specific needs, knowledge gaps, and to receive feedback on research results, (3) development of specific practical actions providing access to ecosystem services, and (4) sharing the experience of the project actions.
Target groups	Researchers, policy-makers, agricultural land-users
Level of operation	International (Estonia – Latvia – Lithuania)
Activities implemented (input and process)	✓Grassland ecosystem service assessment at the selected case study areas; ✓Development of the Tool by addressing socio-economic matter in nature conservation policies; ✓Analysis of the national policies and regulatory framework in the Baltic States; ✓Development of pilot scenarios for long-term grassland management; ✓Capacity building on applying the Tool for the relevant target groups and operating the Tool at national, regional, municipal, protected areas and farm level
Key results / impact of the initiative	✓Specific activities in 9 case study areas (https://vivagrass.eu/demo-case-areas/) resulting in enhanced access and valorisation of grassland ecosystem services by users, based on specific needs of

land-users, and considering the properties of ecosystems and local traditional values;

- ✓20 publications (https://vivagrass.eu/downloads/) addressing specific knowledge gaps (both regarding the grasslands and the sustainable use of their ecosystem services) and various audiences ranging from farmers and local politicians to the national and international academic communities;

- ✓The "Viva Grass Integrated Planning Tool" for decision making and planning sustainable use and management of grasslands. It enables integration of grassland ecosystem services into planning and decision making by linking biophysical grassland data (e.g. land quality, relief, land use/habitat types) with expert estimates of the ecosystem services as well as socio-economic context. The tool is integrated into an online GIS; it was tested with all the case study owners.

- ✓Interfaces for discussions research results and identifying solutions.

Identified benefits:

- ✓Specific cases for valorisation of grassland ecosystem services
- ✓Understanding of grassland ecosystem services
- ✓Successful cases of protecting and restoring grassland biodiversity
- ✓Traditional knowledge valorised
- ✓Promotion of collaborative methods in grassland ecology and land-use management

Funding body EU LIFE program

More information https://vivagrass.eu/

Title

Use of remote sensing data for elaboration and development of public services

Organization implementing the initiative

Estonian University of Life Sciences, University of Tartu, Tallinn University of Technology TalTech, Kappa Zeta Ltd

Timeframe

2019-2021

Objective

The purpose of the project is to develop capacity for wider use of remote sensing data from the Copernicus program and drones to improve public services

Barriers and challenges

Barrier: Inadequate use of remote sensing program Copernicus data by national agencies and in public services

Challenge: to understand the knowledge gaps at various user groups and to come up with prototypes and functional communication instruments to address them

Barrier: Public authorities' awareness of possibilities the remote sensing program Copernicus and drone technology is low

Challenge: to identify awareness deficits and to address them through educational resources targeting particular groups and needs

Overview of the Initiative

Two universities and private company Kappa Zeta formed consortium "KAUGSEIRE!". Then they have identified key end user groups for each of the 4 themes identified by the government. The project lead partners had organised regular meetings with end users in order to identify “prototypes”, as well as modalities for further interactions (such as regular consultations), as well as capacity building needs to address in the course of the project (including training events). The development of prototypes and related capacity building were around the following topics and state institutions: (1) prevention and liquidation of landscape fires (Estonian Rescue Board and the Ministry of the Interior), (2) flood and water level monitoring (Estonian Rescue Board, the State Meteorological Service, Environment Agency and the Ministry of Environment), (3) monitoring of the use of agricultural lands, main crops (Agricultural Registers and Information Board (ARIB), Ministry of Economic Affairs and Communications), (4) planning and supervision of construction activities (Tallinn City Planning Board, Ministry of Economic Affairs and Communications).

It helped RITA1's general goals to create synergy between the public sector, TA activities and business to support the fact that a start-up company has been included as a partner in the "KAUGSEIRE" consortium. A very big strength of applied research was the close relationship with the end users (ARIB, Estonian Board, Environment Agency, entrepreneurs and farmers). The end users have been of decisive importance continuous feedback throughout the study. The goal was to develop user manuals and prototypes that meet the capabilities and needs of the end user as accurately as possible.

Target groups

Researchers, policy-makers, ministries, local communities, state institutions

Level of operation

National

Activities implemented (input and process)

- ✓ Preparation: identification of user groups, identifying their needs, and establishing iterative consultation process with them
- ✓ Research: development of prototypes for remote sensing application corresponding to various activities by end-users
- ✓ Capacity-building: training events and development of educational activities
- ✓ Co-design of research and interactive collaboration to ensure broader and more effective use of remote sensing data, and to maintain the interaction on data collection and applications between responsible state organisations and end-user groups.

Key results / impact of the initiative

The main results of the project were related to data processing and methodology development. They formed content of eight prototypes, an algorithm for accurate precipitation calculation was also added. Prototypes were submitted descriptions of algorithms together with methodology of a specific field, analysis of data processing needs and with operating instructions.

- ✓ Prototype 1: Assessment of fire risk assessment and prognoses;
- ✓ Prototype 2: Fire distribution algorithm on landscape;
- ✓ Prototype 3: Identification and evaluation of ecosystem damage and damage avoided based on the concept of ecosystem services;
- ✓ Prototype 4: Flood mapping from remote sensing using Sentinel 1 and Sentinel 2 images;
- ✓ Prototype 5: water level monitoring of the open part of coastal seas and inland water bodies;
- ✓ Prototype 6: Wetland moisture regime and volume of mined peat heaps;
- ✓ Prototype 7: Identification crops on farmland using satellite information (in total 28 crops);
- ✓ Prototype 8: Remote sensing applications (drones) in the construction industry

The state institutions got empowered to implement national and EU policies and strategies, while private actors received management and forecasting tools.

Identified benefits:

- ✓ Science-policy-business interfaces created over the use of remote sensing data
- ✓ Prototypes developed to streamline remote sensing-related application in various sectors
- ✓ Promotion of collaborative methods in remote sensing data acquisition and application

Funding body

Eesti Teadusagentuur

More information

https://datadoi.ee/bitstream/handle/33/310/RITA%20Kaugseire%20L6pparuanne_avalik%20osa.pdf?sequence=7&isAllowed=y

Title

Mosquito Alert Italia

Organization implementing the initiative

Department of Public Health and Infectious Diseases, University of Rome "La Sapienza", in collaboration with: Science Museum of Trento, Italian Higher Institute of Health, Experimental Zooprophylactic Institute "delle Venezie", University of Bologna "Alma Mater Studiorum"

Timeframe

2022 – ongoing

Objective

The goal is to fight and control the spread of invasive mosquitoes in Italy, which are possible vectors of Zika, Dengue and West Nile viruses, through the use of a smartphone App. This is an educational and surveillance tool, as well as a useful tool for managing possible control interventions on given areas, and a scientific tool that facilitates the possibility of creating predictive models based on the use of "big data". The project also aims to integrate the work of researchers with that of participating citizens and competent authorities, with the purpose of producing scientifically valid data that can enhance traditional mosquito monitoring tools.

Barriers and challenges

Barrier: high number of people, as well as much time and effort, needed to get a seamless picture of the mosquitos' spreading on a national map, and to have a constant update through time.
Challenge: connect the use of the App by citizens and the acquired data with specific and prompt interventions at the regional and local level.

Overview of the Initiative

Mosquito Alert Italia is a part of an International effort (Mosquito Alert) aimed at establishing a citizen science platform for studying and controlling the tiger mosquito (Aedes albopictus) and the yellow fever mosquito (Aedes aegypti). Both of these mosquitos are included under the term "urban Aedes." They can transmit diseases such as Zika, Chikungunya, dengue, or yellow fever.
A special free app of the same name (Mosquito Alert) was created for the project. Using this app, anyone can send sightings of urban Aedes or their breeding sites and attach photos for validation by experts and others.

Target groups

Primary and secondary school students (and first teachers); adult citizens in general.

Level of operation

Country (in integration with the international project Mosquito Alert).

Activities implemented (input and process)

With the app Mosquito Alert anyone can send observations of tiger mosquito, yellow fever mosquito or breeding places in urban space. This information is key to generating a participatory alert system to improve the management of this species and minimize the risk of disease transmission.
The project offers also free tools and resources to carry out rise awareness, educational activities or prevention campaigns against the tiger mosquito.
In particular, the educational program of Mosquito Alert is developed in several sessions of a total of 10 hours, following the methodology of work by projects in schools. The objective is to encourage participation in citizen science among young people and to reach areas where there are few notices of tiger mosquitoes or their breeding places through the Mosquito Alert app.

Key results / impact of the initiative

The first result is a European interactive online map, with citizen data validated by experts. It also has analysis and visualisation tools. Local authorities can turn them into control actions in their territory completely free of charge.

Identified benefits:

The data acquired through the app can:

- ✓ integrate scientific work (citizens' observations are part of a common database useful for the investigation, monitoring and control of the tiger mosquito and other mosquitoes dangerous to humans. This complements the work of many scientists and entomologists who study the distribution and expansion dynamics of these invasive species);
- ✓ enable realistic management by institutions (thanks to a participatory warning system, citizens' information improves the management of these invasive and dangerous species, minimizing the risk of disease transmission);
- ✓ assist pest control companies in their work (this information acquisition system – called Big Data – contains valuable information for the activation of real strategies to be implemented in our cities for the containment and control of these invasive species)

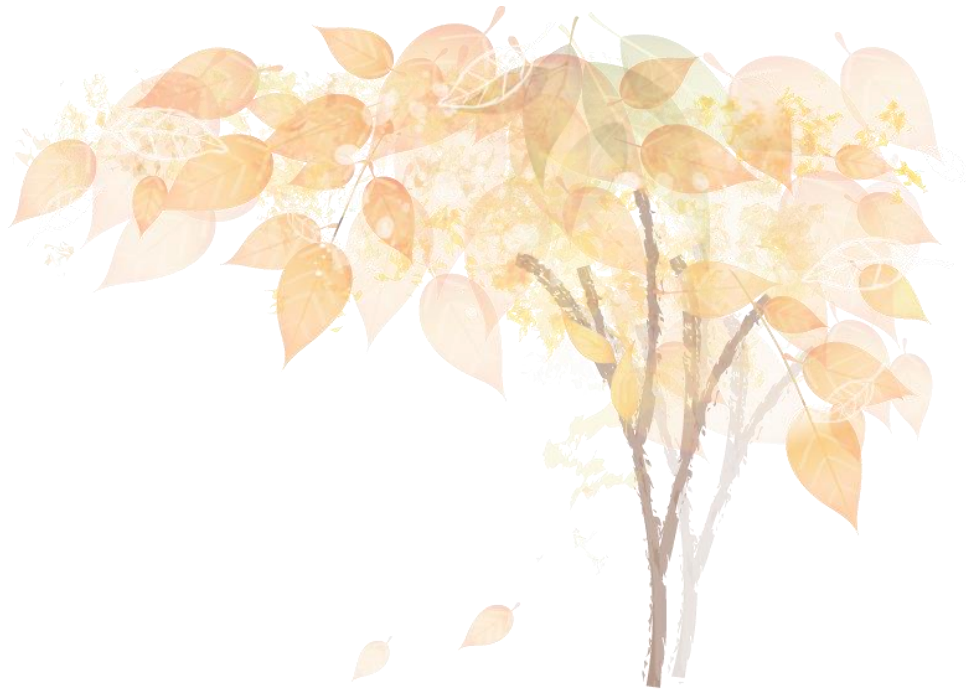
Funding body

Public and private bodies of various kind (see here for more details).

More information

Mosquito Alert Italia:
https://www.mosquitoalertitalia.it/mosquito-alert/

(Mosquito Alert: http://www.mosquitoalert.com/en/)



Title	**"LIFE in the city: green urban and peri-urban regeneration for biodiversity conservation through stakeholder engagement and citizen empowerment in the Lombardy region"**
Organization implementing the initiative	Oikos Institute (International NGO)
Timeframe	Start Date: 01/10/2021 – End Date: 30/09/2023
Objective	The main goal of the project is to design and test an innovative, collaborative and participatory model of green urban regeneration for biodiversity conservation, based on measurability, replicability, engagement and mobilization methods. Citizens, city planners, local administrators, schools, local parks and local entities/NGOs are to be involved. The methodology developed in the project is tested and compared in 3 locations – the urban area of Milan, the medium-sized city with many green areas of Varese, and the small industrialized town of Cassano Magnano. The project aims to achieve the following specific objectives: - increase urban and peri-urban biodiversity by engaging at least 1,000 citizens and city planners from 3 municipalities through co-designed and participatory green pilot actions in public and private spaces; - enhance the knowledge and skills of at least 100 urban administrators and municipal technical staff related to the EU biodiversity strategies and their application at local level through inclusive practices;
Barriers and challenges	Barriers: Lombardy is the most populated region (400 inhabitants per km2- Istat, 2020) and most fragmented territory of Italy, as well as one of the most polluted and exploited areas in Europe. It has 287,000 hectares of surface waterproofed by concrete and asphalt, and the Organisation for Economic Co-operation and Development (OECD) indicates that Lombardy is one of the worst areas in Europe for environmental indicators, such as for the average level of fine particulate matter (PM2.5), which represents the quality of the air. The region is affected by natural habitat destruction and loss of pollinators, the increased impact of climate change, hydrological instability and the reduction of recreational services and social well-being. Challenges: the rate of biodiversity loss is unprecedented in history, a critical problem that is both caused by and has impacts on humans. Because most people live in cities (75% of the EU population), there is an urgent need to understand how biodiversity concerns can be addressed and integrated into urban planning and policy decision-making, boosting cities to become a key player in the effort to conserve and restore ecosystems.
Overview of the Initiative	The implementation of co-designed and shared nature-based solutions in most exploited areas, such as urban and peri-urban contexts, can greatly contribute to rebuilding the resilience of territories, reconnecting the link between citizens and natural capital, and empowering local communities by engaging them in participatory planning actions of regenerative territorial development. Lombardy represents a key area for restoring healthy

habitats and an opportunity to experiment with innovative stakeholder engagement strategies and community mobilisation methodologies.

Target groups

Citizens, city planners, local administrators, schools, local parks and local entities/NGOs (at least 1,000 citizens directly involved; city planners from 3 municipalities; at least 100 urban administrators and municipal technical staff related to the EU biodiversity; at least 500,000 people indirectly involved – increasing their environmental awareness through dissemination activities and promotional campaigns).

Level of operation

Lombardy region (Italy)

Activities implemented (input and process)

- ✓ Monitoring activities involving at least 50 citizens;
- ✓ Co-designing green public spaces with at least 15 People engaged;
- ✓ Organization of learning events with at least 150 people involved;
- ✓ Digital awareness-raising actions reaching out to at least 500,000 people.

Key results / impact of the initiative

Expected results (some of which, already, fully or partially achieved):

- ✓ Bio-Green School models realized through the active participation of 500 people (pupils, teachers, non-teaching staff, etc.);
- ✓ 700 m^2 of grassland planted using native species and 150 native shrubs/trees;
- ✓ Declaration obtained from 200 people on the implementation of conscious urban gardening practices in their private green spaces;
- ✓ Knowledge and skills improved of 75 out of 100 teachers and educators on bringing biodiversity back into urban and periurban areas and on how to do this at school level;
- ✓ Knowledge and skills improved of 100 urban administrators and municipal technical staff on the importance of urban and periurban biodiversity, including for people's health and wellbeing;
- ✓ Travelling photo exhibition visited by 4,000 people;
- ✓ 300 citizens mobilized for biodiversity conservation;
- ✓ 1,000 decision-makers (urban administrators and municipal technical staff, teachers and educators) reached with dissemination initiatives.

Identified benefits:

- ✓ The vegetation species of the target area (6 km^2) identified and local knowledge on vegetation traits increased through spatial pattern analysis;
- ✓ Knowledge increased on taxa belonging to the Habitats Directive annexes and Species of European Conservation Concern and on the microclimatic situation related to vegetation structure;
- ✓ Green spaces identified and prioritized;
- ✓ Tangible interventions for biodiversity protection implemented, including in 6 schools.

Funding body

European LIFE programme

More information

https://webgate.ec.europa.eu/life/publicWebsite/project/details/5820

Title	**TranSuMan project – Advanced training on sustainable management of pastoral systems**
Organization implementing the initiative	University of Camerino (Italy), University of Thessaly (Greece), Catholic University of Valencia (Spain), and Babes Bolyai University (Romania).
Timeframe	May 2022 – May 2025
Objective	Bringing planning practices out of the studio and putting students in contact with concrete societal problems and challenges is considered by the Consortium to be highly relevant to the improvement of the job market. Moreover, the achievement of these multidisciplinary skills represents an important goal to support the mountain inhabitants avoiding abandonment and loss of mountain cultural heritage. Thus, we need to form new professionals able to approach in a multidisciplinary way the sustainable management of the pastoral system and to use innovative technologies.
Barriers and challenges	Barriers: semi-natural grasslands are an essential part of the European cultural landscape, being hotspots of biodiversity and priority habitats of the European Union (92/43/EEC Directive). However, they are being lost or degraded at a very high rate all over Europe; indeed, more than five million hectares between 1990 and 2013 have been lost (https://fao.org/faostat). Challenges: pastoral systems conservation is a major goal in EU policy since they represent biodiversity hot spots, cultural heritages, essential elements of European landscapes of high aesthetic value, and of high potential to sustain high-value farming. Its conservation can be achieved only by a high level of knowledge related to a multidisciplinary approach to the governance system, based on information related to grassland ecology and dynamics; conservation strategies, based on habitats, birds and landscape EU Directives and defined by a bottom-up process involving local stakeholders; farming sustainability that accommodates grazing planning, reduction of conflicts with wildlife, domestic animal welfare improvement, climate change adaptations, products marketing; and innovation, like precision agriculture and technologies that deals with climate change adaptation.
Overview of the Initiative	The project promotes the integration in HE curricula of an innovative and sustainable method for teaching & learning the sustainable management of pastoral systems, based on multidisciplinary and multi-stakeholder laboratories, that bridges scientific and traditional knowledge, for defining shared solutions in a real-life setting. The real-world training of students with local actors is the strong point of the proposal, not only to define management principles, but also to produce open educational contents to form new researchers and professionals able to approach in a multidisciplinary way the sustainable management of the pastoral systems. Entrepreneurs, ecologists, economists, agronomists and experts in grassland management are more and more often required to handle complex, intertwined issues being able to mediate among different interests and effectively communicate choices and solutions to herders, farmers, managers, technicians, local administrators and the wider public. This interplay is a unique, real-life experience for students that gain knowledge in the field.

Target groups	Entrepreneurs, ecologists, economists, agronomists and experts in grassland management, as well as herders, farmers, managers, technicians, local administrators and the wider public.
Level of operation	European (4 pilot areas in each of the partner countries: Italy, Greece, Spain and Romania).
Activities implemented (input and process)	Teacher Training Workshop. 27 and 28.06.2022. Cluj-Napoca (Romania). This first meeting, held in the format of a Teacher Training Workshop, was held at the Faculty of Economics and Business Administration at the Babeș-Bolyai University, in Cluj-Napoca (Romania), with the participation of professors and students from the participating universities. In addition to the working meetings to design the methodological guidelines and plan the dissemination of the project results, a working visit was made to the Apuseni Mountains, to learn first-hand about the pastoral systems and related economic chain.
Key results / impact of the initiative	The Grassland Management Intensive Course will result in a variety of educational materials that the Consortium intends to make freely available for the replication of the experience and the wide dissemination of the methodologies applied during the project. Therefore, the project will transform such materials in Open Educational Resources and organize them in a modular course focusing on the project themes and approach that will be uploaded on each institution's dedicated e-learning platform.
Identified benefits:	The production of guidelines for the involvement and training of local stakeholders in grasslands management, monitoring and preservation, will allow defining strategies to enhance their skills using a bottom-up approach, but also to use their practical knowledge in HE teaching programmes. By carrying out the Grassland Management Workshops, the project intends to promote the diffusion in the Universities of an innovative, highly stimulating learning environment, using trans-disciplinary cooperation to more effectively transfer the knowledge and competences required to students.
Funding body	Erasmus+ programme
More information	https://www.ucv.es/investigacion/transhuman/grasslands-management

Title

Code of Good Practice for Renewable Energy

Organization implementing the initiative

Wolf Theiss' RES
RWEA (Romania's Wind Energy Association)

Timeframe

2021 -2030

Objective

Support economic growth and technological advance of the Romanian energy sector and bring together public and private stakeholders united by one simple mission – creating a framework that is both climate friendly and economically viable, for the generations to come.

Barriers and challenges

Barrier:

Better control of technical connection approvals, and more transparency regarding areas where there is still available capacity. Law 123 continues to stipulate that trading on the centralized markets is mandatory. This is an obvious discrimination against older capacities, in fact the European Commission has already signalled its disapproval.

Challenge:

The main challenge is that a large share of investors and developers want to place their projects in areas where the wind and solar potential is at its maximum (Dobrogea), but the access is fairly limited because there are already numerous capacities installed. Changing the available grid capacity as contracted. In-depth understanding of local public perceptions, beliefs, fears, expectations, and risk assessments with regard to the planned investment.

Overview of the Initiative

The purpose of this Code and its timing is related to the green energy transition, including all stakeholders and improve the quality of life of citizens-customers. As technology is making electricity increasingly cheap, stable and reliable, liberating it from the price fluctuations of fossil fuels, RWEA companies are here to help Romania achieve its tremendous potential. Furthermore, the vector of electricity enables us to use available resources more efficiently. In short, the benefits are enormous and with renewables we can decarbonize electricity and consequently numerous other sectors of the economy. This is a perfect example of technology being the climate's ally.

RWEA (Romania's Wind Energy Association) compiled the lessons learned by a 10+ years mature industry to kick off a second wave of RES developments with a long-term vision in mind. The country's National Energy & Climate Plan (NECP) envisions an additional 6 GW of RES capacities needed by 2030, which in turn means immense economic opportunity and the birth of a national industry supply chain.

The Code of Good Practice follows three overarching goals:

- ✓ to guide existing and potential investors in the journey of setting up wind and solar farms in Romania, from permitting and community engagement to grid connection and decommissioning
- ✓ to extend a collaborative hand to public authorities, suggesting ways to integrate the EU energy transition

agenda into Romania's national plans, benefitting the overall economy and future of our people

- ✓ to advocate for the variety of side industries that have room to develop in Romania and in this way attract new players to our national supply chain

Target groups

Companies, stakeholders and investors that operate in the green energy field.

Level of operation

International

Activities implemented (input and process)

Power Purchase Agreements (PPAs) are very straightforward for small scale installations of up to 3 MW – they can be negotiated directly with local authorities and suppliers and concluded outside centralized markets. For capacities beyond this mark some clarifications are still needed. As of 1 January 2020, by virtue of the EU Regulation 943/2019, PPAs are legally allowed in all EU member states. This, however, has not been fully reflected in the Romanian law, which has deterred market participants to close PPAs out of legal insecurity.

Contracts for Difference (CfDs) - Romanian authorities are pondering a support mechanism for „low-emissions energy sources" (i.e. nuclear power and RES). They are drafting amendments to the Energy Law and to the ANRE and OPCOM secondary legislation to accomodate CfDs and provide investors with the right tools to secure revenues. In the initial CfD mechanism proposed by the authorities in 2019 producers benefitted from a fixed price level known as a "strike price", which reflected the cost of investment in a particular technology. An ex-ante "reference price" would be established annually, calculated on the basis of the average prices recorded on the centralized markets in previous years. Producers would then move to selling electricity on the competitive market - if the price obtained was below the strike price, they would receive a payback for the difference. On the flip side, if the market price was higher than the strike price, CfD beneficiaries would have to reimburse the counterparty.

National financial institutions support -National Bank of Romania, that is currently preparing a report due mid-2021 on the perspectives for green financing at national level.

Key results / impact of the initiative

The year 2018 marks the introduction of the "prosumer" concept in Romania's legislation, allowing individuals to produce their own green energy and inject any surplus into the distribution grid. They can sell the energy directly to the main supplier and the price they received is equal to the weighted average price on the day-ahead market in the previous year.

The NECP was submitted to the European Commission in April 2020. Its policies and measures pursue the decarbonization objective assumed by Romania as a member state. Romania commits to a total of 30.7% of RES-electricity in its final energy consumption mix by 2030.

Identified benefits:

Taxes on foundation and construction – e.g. the turbine tower and foundation taxes – are paid directly to the municipality. In many areas, rural and otherwise, these payments make for an important source of revenue for the local budget; Rent payments to landowners for their leased surfaces – turbines are there to stay, which means

safe money for the long run; Quality jobs for the local workforce from builders to engineers, in different stages of the wind farm's development. This is where nation and country level authorities can lend a helping hand by putting together formation, reskilling and upskilling programs. Not to mention the effect of horizontal multiplication, with a variety of new jobs in services and production; Grid modernization, reinforcement and expansion and transport infrastructure upgrade. This is a win-win situation: helping locals by attracting more investments into the region and modernizing neighboring roads; CSR actions bring added value to the social life and wellbeing of local communities.

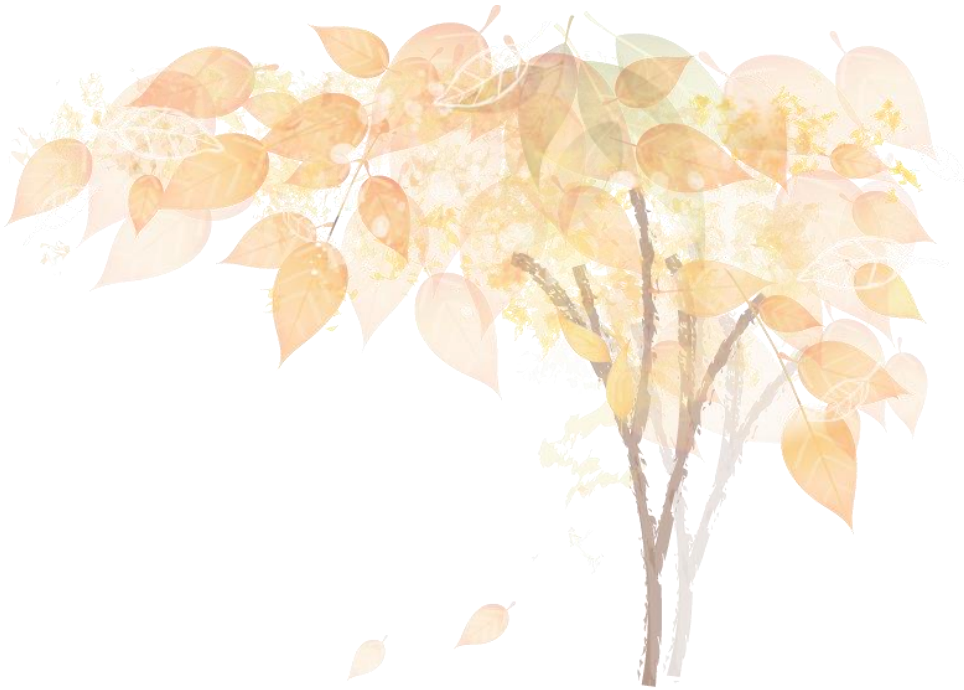
Funding body

RWEA, side by side with government representatives, the Romanian Presidential Administration, EIB, EBRD, the World Bank, commercial banks, and relevant NGOs in the green energy field.

More information

https://www.wolftheiss.com/insights/code-of-good-practice-for-renewable-energy-in-romania/

https://business-review.eu/energy/green-renewables/the-romanian-wind-energy-association-rwea-is-launching-the-first-code-of-good-practice-for-renewable-energy-220293



CONCLUSIONS

All partners in the consortium identified the best innovative practices in the EU presenting how universities implement Socially Engaged Research in real life. This document compiles of 25 examples of innovative practices which are accomplished and still ongoing in the local, regional and international frameworks. We have valuable examples (three per academic partner with a life science focus and two by non-academic partners focused on nonlife science practices) with high impact potential and innovative practices implemented by the partners of the consortium and/or external institutions. Showcases overcome challenges such as embedding social innovation and sustainability into product-service-system design, articulating the open knowledge, resources and stakeholders on knowledge sharing in order to establish, run, network and enhance the impacts of science on implementing community-based research.

Some of the examples exceed goals such as: science for soil protection and healthier food for civil society, naturally based production for environmental health improvement; development and application of unique bioremediation methods in order to eliminate dangerous toxic substances from the environment, primarily contaminated land, water and air; developing and validating high quality medicinal products; need for an applicable set of indicators along with their validation at different scales and in different ecosystems; providing the evidence base for ecological intensification and demonstrate the concept in seven representative agricultural landscape types in EU; synthesizing management and policy recommendations, concerning ecological intensification in agriculture; providing the evidence base impact of green energy on plants and animal communities; create educational materials for subsequent decision-making direction of the development of hunting tourism in the European Union countries; increasing of the innovative potential in region with new research infrastructure are real outputs of cooperation and transfer of knowledge mutually between the universities and scientific institutes, industry partners, local government communities and civil society.

Compiling 25 examples of innovative practices in socially engaged research is inspiring and incentive for future ventures. This diligent document showed the importance of joint actions of all stakeholders, the importance of a better understanding of the different angles and perspectives of each of the participants, the strength of the consolidated civil sector and the implementation of real knowledge for a better life. Or maybe even more convenient – implementation of better knowledge for real life.