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**INTEGRATED
STRATEGY
FOR SUSTAINABLE
MANAGEMENT
OF SPAS NATURAL
RESOURCES**



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Final version



PROJECT PARTNERS



City of Križevci



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SUMMARY

Integrated strategies are documents that have the general objective of (re-) building an inter-sectoral model based on a set of keys (long-term) principles, values and goals.

One of the main objectives of integrated strategies is to build a knowledge base that facilitates the formulation and the implementation of policy measures, consolidate networks and define effective monitoring, evaluation and reporting routines that periodically inform decision makers on the progress made and the deadlocks encountered.

Integrated strategies can then be translated into “grandiose” programmes that address many sectors, levels of governance and actors or focus on only a few sectors or regions. Regardless of their scope, they intend to address perceived shortcomings by rationalizing multiple objectives and the systematic use of policy tools, so that the actors involved in a given sector support each other instead of weakening each other in pursuing those goals.

Within the HealingPlaces project, the construction of an integrated strategy for the sustainable management of SPAs natural resources aims at improving the environmental management capacities of local/regional public authorities and other SPAs decision makers, increasing knowledge and awareness of the fragility of water deposits among different stakeholder groups, such as authorities, organizations, businesses and the general public, to implement innovative and reactive decision-making processes based on partnerships between the thermal business sector, environmental management organizations, local and regional authorities and other strategic actors.

Therefore, the HealingPlaces Integrated Strategy is based on an interdisciplinary and participatory approach. And, while the cooperation between stakeholders is its basis; the products created in the project - tools, pilot actions, analysis, best practices, guides, manuals, handbooks - all together have constituted a fundamental contribution to its construction and strengthening.

Thanks to this solid structure, the general scope of HealingPlaces Integrated Strategy proposes a new participatory model for the sustainable management of SPAs, by promoting the “shared resource” aspect and strengthening the links between local, regional, national and European plans.

The present report should be intended by the end users as a programmatic document in which the main inspirations that emerged from the project are included. Starting from the main evidence emerged from the systematic analysis of the threats and pressures on the SPA systems and their validation through the Regional Working Groups (RGWs) and the implementation of the Feasibility test and taking into consideration the main results of the Pilot actions, the strategy addresses the political, environmental and social challenges that weigh on SPAs natural resources by contrasting them with specific actions capable of mitigating its negative effects.

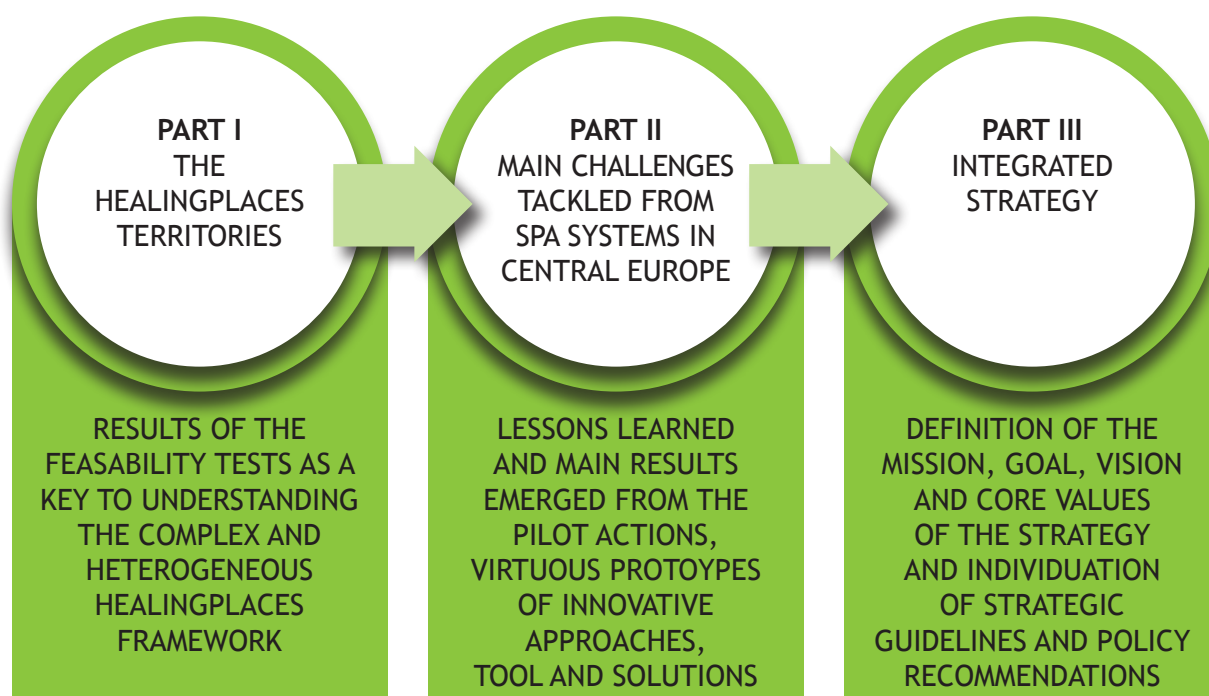
It consists of three main sections (**Fig. 1**). The first section is dedicated to the presentation of the territories of the project partners (PPs) as places where the path towards a more sustainable vision for the development of SPAs (pilot actions) has been tackled. Thanks to the planning and organization of pilot actions that the project partners have carried out, the potential of the SPAs to promote local sustainability, growth and territorial development has been validated.



The second part summarized the analysis of pressures and threats of the SPA systems implemented within the WP1 and tested by the realization of the Feasibility Test involving the main territorial stakeholders.

The last section consists of the core part of the **Integrated Strategy for Sustainable Management of SPAs** natural resources. In this part, the mission, goal, vision and core values of the Strategy are defined and strategic guidelines and policy recommendations are individuated.

FIG. 1 - HEALINGPLACES INTEGRATED STRATEGY STRUCTURE



Source: *HealingPlaces, Work Package 3*

Consistent with the main objectives of Interreg Central Europe 2014-2020, the Integrated Strategy responds to the priority of protecting and sustainably using SPAs natural resources, which are subject to increasing environmental and economic pressures and usage conflicts. And it aims at improving, not only the management of SPAs heritage but also finding new and innovative methods to raise awareness among policymakers and local communities on the importance of SPA natural resources as a fundamental trigger for regional and local development.

The Integrated Strategy is the result of a joint collaboration developed by the project partners and key stakeholders through the use of tools, improved skills, shared responsibilities and collaboration designed and tested within the project. But it's also the product of the collaboration mechanism established between the management sector of the SPA, which brings its expertise in natural resource management, and the public sector, which positions the inputs of the private sector in the service of the local common interest.



INTRODUCTION

This document presents the Integrated Strategy for Sustainable Management of SPAs natural resources that the representatives of different regions in Central Europe (CE) has brought together during the implementation of the HealingPlaces project.

“HealingPlaces - Enhancing environmental management capacities for sustainable use of the natural heritage of Central European SPA towns and regions as the driver for local and regional development” is a project funded by the EU Interreg Central Europe Programme. The project started in April 2019 and it will end in June 2022. The project is run by 10 partners, led by the Central Mining Institute (Katowice, Poland).

The project aims at improving the current management practices of mineral and hot water and valuable natural resources of SPAs. SPA heritage and related natural resources are assumed to be subject to environmental and economic pressures and usage conflicts, so one of the main challenges for the future will be to protect them in a way that allows their further sustainable development.

The project consists of three different but close related work packages (WPs). The thematic WP1 “Environmental Mapping and Assessment” aims to develop common tools for an integrated assessment of current and expected threats and pressures on mineral and thermal water resources in SPAs. Its final outputs is the development of a common methodology and ranking criteria for the assessment of the impact strength on mineral and thermal water resources.

The WP2 “Pilot actions in project regions”, closely connected to WP1, focuses on the practical implementation of the sustainable use of water resources in the SPAs, throughout the development and implementation of pilot actions located in the various regional territories of project partners (PPs). These pilot actions implemented on the local scale has provided the practical elements for the development of the Integrated Strategy of the CE regions on a project scale.

Finally, the WP3 “Management strategy & guidance: Integrated Strategy for Sustainable Development”, starts from the involvement of the most relevant stakeholders through the Regional Working Groups and from the lessons learned from best practices on the management of environmental and socio-economic pressures in the partner regions, establishes an Integrated Strategy for the Sustainable Management of the SPA system, as one of the main results of the project.

The “Integrated Strategy for Sustainable Management of SPAs natural resources” and the “Handbook on Best Practices in Environmental and Socio-economic pressures mitigation and conflict solving” represent the main results of thematic WP3 and the HealingPlaces project.



METHODOLOGICAL FRAMEWORK

For the elaboration of the strategy different research methods have been adopted and integrated. Desk research activities have characterised the first phase of the project's activities, especially within WP1, in which a detailed transnational analysis has been carried out. This reference context has represented the fundament of the cognitive process and an essential tool to carry on a correct declination of the strategic objectives. Indeed, thanks to the transnational analysis the partnership has been able to:

- outline an integrated view of the situation in which the strategy operates;
- estimate the potential interactions and synergies with the subjects involved in the project, both directly and indirectly;
- verify the specific challenges;
- verify the constraints and opportunities offered by the reference environment.

In this way, a common framework of the SPA areas of the HealingPlaces project in terms of environmental condition and socio-economic development, highlighting the main potentials threats and pressures that can affect the SPAs natural heritage, has been outlined.

In order to verify, what emerged from desk activities, since the very beginning of the project, Regional Working Groups (RWGs), have been involved in each partner region. RWGs have been intended as multidisciplinary panels of regional key actors and stakeholders among public institutions, private actors and scientific communities able to provide support to the decision-making process.

Opinions and recommendations from RWGs have been deeply reported during the specific workshops dedicated to the elaboration of the Strategy (D.T3.3.1 Workshop on strategy for sustainable management preparation; D.T3.3.4 Workshop for the finalization and approval of draft of Integrated Strategy).

Therefore, the continuous process of sharing knowledge and exchange of experiences established between the partners and the respective RWGs, has made possible to build up a full participatory mechanism, working inside and outside the partnership, enriching every step of strategy elaboration.



The last phase of strategy elaboration has been characterized by a “in depth research approach”. A first draft of Integrated Strategy has been elaborated and then, tested among the main regional stakeholders through the implementation of a Feasibility test. At this stage, face to face interviews and specific focus groups have been carried out in order to collect in depth opinions and recommendations of the main project’s stakeholders.

The result of this process and the main suggestions collected during it has become the key elements able to confirm the risky macroareas, the specific challenges and strategic actions to mitigate the negative effects of existing pressures and potential threats on SPAs Central Europe System.

Last but not least, indispensable element of the path toward the finalization of the Integrated Strategy has been the lessons learned and the main results emerged from the implementation of the Pilot actions, as virtuous prototypes of innovative methods and tools, able to prove their feasibility, applicability and effectiveness of a more sustainable management of SPAs natural resources.

For this reason, we have dedicated the following paragraph to a short the Pilot actions recap, to valorise this element that, in somehow, represent the first step forward toward change taken within HealingPlaces.



PART 1

THE HEALINGPLACES TERRITORIES. INNOVATIVE APPROACHES FOR A MORE SUSTAINABLE MANAGEMENT OF SPAS NATURAL RESOURCES





1. THE INVOLVED TERRITORIES: PERFECT LABORATORIES WHERE CHANGE HAS BEEN ADDRESSED

Natural deposits of mineral waters and hot springs are well known in Central Europe. Their healing power is widely used and they are important drivers of local and regional economies in the health care, wellness, and tourism sectors.

According to the last data available from Global Wellness Institute (2021), SPAs establishments in Europe alone are 52,973 (160,100 worldwide), from which about 5,967 thermal / mineral spring establishments use mineral and thermal water resources for bathing, drinking and treating various health problems (2018 data).

Parallel to the great development of SPAs, wellness tourism has grown considerably in recent years, placing mineral and thermal springs at the centre of the economic development of a multitude of European territories.

In addition, even if for the European society healing water does not have the same strategic importance, it will gain more and more strategic relevance for European member states. Indeed, from an economic point of view, tourism is a growth engine for the many Member States. In particular, healing water and thermal tourism have represented (still represent) an important socio-economic resource in many areas (especially the rural ones) and thus support regional future development. Particularly, in combination with other natural resources such as air and wood and through the establishment of health systems and competencies (nature parks, organic farming, etc.), medicinal water can contribute as a “regional treasure” to sustainable development in European regions.

HealingPlaces brings together 7 countries and 10 different regional contexts that constitute a complex and not homogeneous legal, environmental and socio-economic context in which the Central Europe SPAs (CE SPAs) are inserted and, from which derive the main challenges for a more sustainable development of its natural resources, based on the main results of the analysis carried out in WP1 and the continuative consultations with main local stakeholders through the Regional Working Groups: fragmentary management, not uniform governance model, growing urbanization, climate change effects, demographic changes and anthropogenic impact on natural resources are some of the several threats and pressures that the Central Europe SPAs are enfacing (**Fig. 2**).

And, it is precisely by referring to this complex framework that the HealingPlaces territories have become pioneers of new methods and approaches for the sustainable management of SPAs by promoting new governance models, applying ICTs to sensitize citizens and policy makers to the value of SPAs, promoting interdisciplinary cooperation between a large panel of stakeholders and emphasizing the strategic role of SPAs in local development.

The main objective of this section is to highlight the value of the pilot areas as perfect laboratories in which some of the key topics covered by the project have been tested and addressed -such as the participatory governance model, interdisciplinary and holistic approach to sustainability, innovation and their influence on sustainable development of the SPAs.

Therefore, the following paragraphs are dedicated to the presentation and description of the pilot regions, as the places where the changes towards more sustainable management of the SPAs have been addressed.



FIG. 2 - THE HEALINGPLACES TERRITORIES



- 1 Lead Partner: Central Mining Institute (PL)
- 2 Dolnoslaskie Region- Institute for Territorial Development (PL)
- 3 Hajdu-Bihar County Government (HU)
- 4 Business Upper Austria - OÖ Wirtschaftsagentur GmbH (AT)
- 5 BORA 94 - Borsod-Abaúj-Zemplén County Development Agency Nonprofit LLC (HU)
- 6 City of Križevci (HR)
- 7 Development Centre NOVO MESTO, Counseling and Development, Ltd. (SI)
- 8 Mendel University in Brno (CZ)
- 9 LAMORO Development Agency (IT)
- 10 Upper Adriatic Technology Park Andrea Galvani SCPA (IT)

Source: HealingPlaces Project (<https://www.interreg-central.eu/Content.Node/HealingPlaces.html>)



1.1. LOWER SILESIA VOIVODSHIP. BALANCED AND SUSTAINABLE MANAGEMENT OF MINERAL WATERS

Lower Silesia (Dolnośląskie Voivodeship) is a southwestern Region of Poland. It has valuable natural resources such as copper, brown coal, and rock materials, and it is one of the most visited regions by tourists thanks to its many castles and palaces. The Dolnośląskie Voivodeship with the subregions Jeleniogórski and Wałbrzyski, where SPA activities are mainly concentrated, has been developing dynamically over the past decades, thanks especially to the touristic flows increase that has been growing rapidly. Dolnośląskie area is the Polish region with the largest number of certified health resorts (11 out of 45 Polish) some of which are owed by the regional self-government.

It is undoubtedly that the development of SPAs is crucial for the general development of the southern part of the region together with tourist activities. That is why the right approach to SPA activities pays a special attention to the protection of natural resources. In this respect, the regional self-government has been engaging itself, over the years, in an intensive cooperation with SPA companies and SPA municipalities and their surroundings. The cooperation has been aimed to support the protection, the valorization, and the sustainable use of SPAs resources, also through the implementation of cross-border cooperation activities with Czech Republic, where are carried out, often using common sources of mineral and thermal waters.

In this area, the Polish Partners (Dolnośląskie Region - Institute for Territorial Development and Central Mining Institute) have designed a pilot action based on the adaptation of the tool elaborated in WP 1, intended to provide the local and regional authorities with an instrument enabling an assessment of threats and pressures on mineral and thermal water resources. This knowledge helps to better tailor the local and regional development policies, in particular, the land use policies, to the local circumstances and in addition set the recommendations for the improvement of the national legal system on SPAs sustainable management. The Pilot action has been performed in two out of eleven SPA resort municipalities in Region: Łądek Zdrój and Polanica Zdrój.

The implementation of the activities within the Pilot action has brought to the elaboration of a common Action Plan for managing Lower Silesian SPAs, which includes a set of specific recommendations addressed to the stakeholders from various administrative levels, private sector and societal organisations. One of the aims of the Action Plan is the increasing the awareness on the importance of SPAs resources and the potential threats that could erode their status among citizens, public and private sectors.



1.2. HAJDU-BIHAR AND BORSOD-ABAUJ-ZEMPLEN. SHIFTING TOWARDS NATURE-FOCUSED DEVELOPMENT OF SPA POTENTIAL

The Hungarian territories of HealingPlaces Project are Borsod-Abaúj-Zemplén and Hajdú-Bihar counties; both can count on a rich SPA potential provided by their numerous thermal bath complexes and the presence of some specialized SPA municipalities.

Hajdú-Bihar County is located in the Eastern part of Hungary on the Great Plain and, in the last decades, has become one of the most important health tourism destinations at national, and also international level. Borsod-Abaúj-Zemplén County stands on north-eastern Hungary and it is the second largest county of Hungary both by area and by population consisting of 16 districts, and 358 municipalities, of which 27 have the status of a town.

The two areas have significant mineral water reserves and more than 70 springs and wells with hot or warm thermal water, making them a popular tourist destination. The counties are also rich in cultural and natural heritage.

Basing on this framework, it is undoubted that, on both the territories, SPAs potential has become even more and more significant for their economic and social development. For this reason, it became clear that building on a stronger and intensified cooperation system between research institutions, municipalities, nature protection authorities/organisations as well as business actors and clusters in this special SPA-nature related issue could be represented a great advantage for the area.

The Hungarian Pilot action, aimed at harmonizing tourism and health industry goals with natural value preservation, has dealt with the intensifying the cooperation of research institutions, municipalities, nature protection authorities /organisations as well as business actors and clusters to ground a local and regional cooperation mechanism and promote the cross-border cooperation.

In strictly collaboration with the main territorial stakeholders, HealingPlaces Hungarian project partners (Hajdú-Bihar County Government and BORA94 Borsod-Abaúj-Zemplén Country Development Agency Nonprofit LLC) have coordinated the elaboration of a shared Sustainable SPAs Development Concept, intended as a reference framework for sustainable use of SPA potential focused on decreasing environmental burdens, improving the efficiency of nature preservation and increasing biodiversity. And, one of the main achievements of the implementation of the activities has been the constitution of Green SPA Network for Eastern Hungary, able to commit the main regional stakeholders to SPA sustainable development, continuous knowledge exchange process, good practice exchange and sharing creative solutions (including green service provisions), that it will be maintained beyond the project lifetime.



1.3. MUHLVIERTLER ALM FREISTADT AND GEINBERG INNVIERTEL. STRENGTHENING REGIONAL PARTNERSHIP IN SELECTED SPA REGIONS IN UPPER AUSTRIA

Upper Austria is an Austrian federal state with the capital Linz, the fourth largest at national level in terms of area and, with around 1.5 million inhabitants. Geologically - from north to south - Upper Austria is divided into two landscape areas. To the north of the Danube River lies a mountain and hill country, which is part of the Bohemian Massif. This granite and gneiss highlands are geologically one of the oldest areas in Europe. To the south of the Danube, the region is constituted by the northern Alpine foothills, a partly flat, partly hilly forest and meadow landscape with intensive agriculture.

Historically, Upper Austria is divided into four quarters: the Hausruckviertel, the Innviertel, the Mühlviertel and the Traunviertel. And, within HealingPlaces project, the Austrian Pilot action has insisted on two of these: the Muhlviertler Alm Freistadt and the Region of Innviertel with the SPA in Geinberg.

In the Mühlviertel, closely related to granite types of the Bohemian Massif in the region, there is an accumulation of healing springs and the best-known water source is the so called Hedwigsbründle, strongly connected with the health center in Bad Zell., an established tourism community with consistently decent numbers of overnight stays and arrivals.

On the other hand, the Geinberg Inviertel is located directly on the Molasse Basin. This significant natural thermal water deposit, with a sediment package up to 3000 m thick, is in the border area between Lower Bavarian and Upper Austria. In recent decades the use of the thermal water in this region - for balneological reasons as medicinal water and for bathing purposes as well as for geothermally reasons for energy generation - has developed into an important economic factor. This intensive use of water resources has even led to considerable pressure drops.

Like other partner regions, that are dealing with challenges of sustainable management of thermal water sources because of conflictual demands, also in Upper Austria the increasing number of applications for the use of the thermal water has made urgent to consider the water management issues with greater attention than before, making them necessary in order to secure the existing use of the water resources and to enable future one.

Basing on this context Upper Austria has been chosen as the ideal place where experiment an innovative model for the management of SPAs Natural Resources grounded on the capitalization “natural heritage



by using a more “nature-focused”. Therefore, the pilot action - coordinated by Business Upper Austria - OÖ Wirtschaftsagentur GmbH is aimed at strengthening the regional partnership in the selected SPA regions and made them more sensitive to the challenges of the protection of healing water. On the basis the existing network of intercommunal cooperation structures, a common strategy to secure a sustainable use of thermal water and other water based natural resources has been developed basing on the in-depth analysis of economic framework, natural resources and relevant future trends in health and environmental policies. Furthermore, a regional task force has been appointed for long-term partnership to ensure a solid structure for sustainable resources management in order to achieve not only a sustainable management of thermal water but also reach out new opportunities to capitalize valuable SPAs natural and cultural heritage.

1.4. CITY OF KRIZEVCI AND SVETI MARTIN NA MURI MUNICIPALITY. ECO-FRIENDLY SPA MANAGEMENT IN REGION AND GUIDANCE FOR SUSTAINABLE USE OF LOCAL THERMAL AND MINERAL GROUNDWATER RESOURCES

Both the Croatian counties involved in the HealingPlaces project (Koprivnica- Križevci and Međimurje) belong to the region of Kontinentalna Hrvatska located in the continental part of Croatia, which accounts for 56% of the country’s territory and 67% of the population in which water resources play a strategic role for social and economic development of the area.

Koprivnica- Križevci County is part of the northern area on the Drava River basin, between the Hungarian border and the forested Kalnik and Bilogora mountains. The territory is characterized by a particular tectonic conformation, dating back to the Mesozoic and Cenozoic era, that determines important thermal resources and guarantees a significant geothermal potential to the region. Belonging to the Koprivnica- Križevci County is Križevci, one of its main cities and with a carrier of a significant attention to environmental issues.

Indeed, since 2011, City of Krizevci has been a member of The Covenant of Mayors for Climate & Energy that brings together local and regional authorities voluntarily committed to implementing EU climate and energy objectives on their territory. In addition, in 2012 City Council has enacted the Sustainable Energy Action Plan (SEAP) and, in 2020 Sustainable Energy and Climate Action Plan (SECAP), both containing measures to reduce CO2 emissions through different areas of activity, including the geothermal sectors.



Međimurje County is located at the northernmost geographical point in Croatia, at the border with Slovenia. The south eastern corner of the county is near the town of Legrad and the confluence of the Mura with the Drava. The Upper Međimurj (northwest) is made up of slopes of the Alpine foothills and the Lower Međimurje (southeast) is prevalently made up of flat parts that are largely used for agriculture, which mostly includes fields of cereals, maize, and potato, as well as orchards, which are mostly planted with apple trees. Water is a crucial element for this territory thanks, especially to the presence of Vučkovec mineral spring from which derives the Sveti Martin SPA complex, considered one of the best health and wellness tourism destinations in Croatia recognized at regional, national, and international levels.

Due to the peculiarity of the area, the Croatian pilot action has been designed by responsible partners - City of Krizevci and Toplice Sveti Martin d.d. (associated partner) as the establishment of collaborative and non-invasive research method on the territorial geothermal sources, led by academic stakeholders in synergy with the main public and private ones.

The pilot action implementation has given the opportunity to address two main territorial challenges:

- the regeneration process of the abandoned geothermal well close to the Križevci city center by assessing the thermal & mineral characteristics in order to avoid depletion of resources;
- the sustainable management of the Sveti Martin Thermal Complex SPAs water resources. Specifically, by determining if the current techniques applied for the research & monitoring of groundwater flow in the area where boreholes are made are adequate or not.

Furthermore, since the Development Strategy of Koprivnica-Križevci County 2014-2020, included measures related to exploration and exploitation of mineral resources, also for geothermal uses, one of the main results from the implementation of the Pilot action has been the delivery of a “Guidance and information set on water resource protection” addressed to the administration for better future planning and for a more effective investors attraction process.

1.5. JUGOVZHODNA SLOVENIJA REGION. SUSTAINABLE MANAGEMENT PLAN OF THERMAL WATER USE

Pilot action 6

SLOVENIA
Vzhodna Slovenija
Sustainable management plan of thermal water use

Background
In region Jugovzhodna Slovenija there are two spa areas based on the extraction of thermal waters and services from balneotherapy and medicine and also a couple of other areas with identified prospective sources of (sub)thermal water. In Slovenia planning and management of use of natural healing resources is in domains of multiple sectors. This approach generates many challenges, such as limitation of management of thermal water between the national authority and water user, lack of protection of thermal water resource areas with policy instruments (decree, act), which are left to the user to manage them. Additionally, communication between municipalities, national authorities and users of thermal water is mostly.

Main aim
Enhanced cooperation and communication for planning and management of thermal water resources on regional level.

Indicators

- 47 Involved institutions
- 2 Events for the Sustainable Spa Development
- 4 Main reports
- 8 Institutions applying project tools and/or services
- 3 Institutions adopting project strategies and/or action plans

Main products

- Scientific analysis for regional development programme, including a biological research (bioindicators)
- Contribution for an assessment tool for strategic planning of land use and regional development
- Establishment of working group for thermal water management in region Jugovzhodna Slovenija
- Development of regional ecosystem approach (including green infrastructure measures) - Action Plan for environmental improvements
- Improvement of management of healing resources and spa areas on national level (with Ministry of Health) - Management plan on integrating thermal water use
- Enhanced cooperation and communication for planning and management of natural resources on regional level

Step by step

- Step 1: Preparation of status quo analysis
- Step 2: Thematic events on regional level and knowledge transfer
- Step 3: Assessment and testing of tool for environmental threat assessment
- Step 4: Establishment of regional working body for monitoring of the Strategy
- Step 5: Management plan on integrating thermal water use

Solutions for other SPAs

- Established system for monitoring of thermal water use
- Tested methodology for monitoring of bioindicator species in water bodies
- Policy instrument for protection of water body with thermal waters

The Slovenian pilot area is represented by the Jugovzhodna Slovenija Region, as one of a few ones where natural resources are being used for healing and touristic purposes.

Jugovzhodna Slovenija belongs to the cohesion region Vzhodna Slovenija and it is characterized by several natural healing resources such as thermal water, mineral water, thermo-mineral water, and mud and the thermal springs in Jugovzhodna Slovenija have been known since the time of the Celts. One of the most



important SPAs of the area is Dolenjske Toplice with Šmarješke Toplice, Čatež & Dobova, Laško, Rimske Toplice, Zreče, Topolšica, Rogaška Slatina, Dobrna, Ptuj, Lendava, Moravske Toplice and Radenci.

Their activity is based on the extraction of thermal waters for balneotherapy, health and drinking purposes.

Therefore, the cultural and natural heritage of the SPA is diverse and rich. Its protection is taken care of by municipalities that adopt spatial plans and protected areas in accordance with the relevant spatial planning legislation (Natura 2000 ecological network, water protection areas and natural monuments).

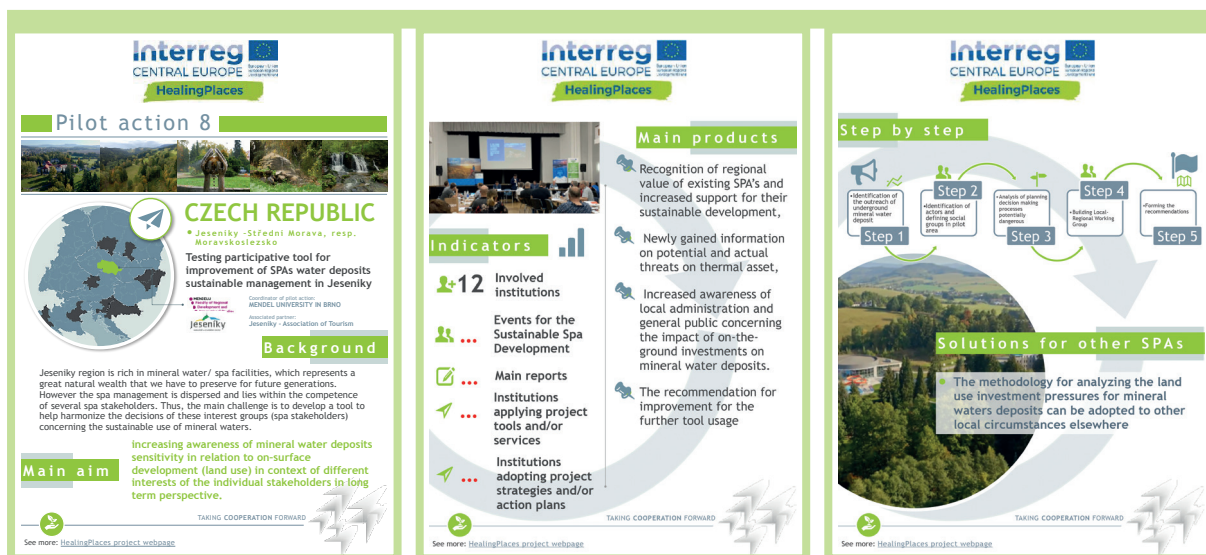
Since the medical effects of thermal water sources represent an important asset to the socio-economic welfare of local and regional, over the years the Region Southeast Slovenia has been committed to enface the challenges of their sustainable management, even if the planning and management of natural healing resources is dispersed among various national sectors, often characterised by outdated legislative framework or legal framework which is not being implemented.

Thanks to HealingPlaces pilot project, coordinated and organized by Development Centre Novo Mesto, Counseling and Development, Ltd. the territory had the great opportunity to identify status quo and elaborate development policies for a more sustainable management of use of natural healing resources, including thermal water use. Specific attention was paid also to the re-use of thermal water and finding solutions for water outflow. Therefore, tools and methods developed in the project (mostly in Work Package 1) and designed to support the planning process, were tested and discussed with local and national stakeholders who operate in management of natural healing resources on different vertical and horizontal levels.

Basing on the main results of the Pilot action it is also expected to integrate its findings and conclusions into legislative framework (Water Framework Directive, Groundwater Directive, the Waters Act, Mining Act, Slovenian Danube river basin management Plan 2016-2021, selected decrees on water protection areas, and other regional and local management plans of Southeast Slovenia), while ensuring financial stability of such operations in public interest, especially those related to the topics of healthy environment, sustainable use of natural resources and participatory planning, which are the key elements of HealingPlaces project.



1.6. JESENIKY REGION. TESTING PARTICIPATIVE TOOL FOR IMPROVEMENT OF SPA WATER DEPOSITS SUSTAINABLE MANAGEMENT IN JESENIKY



The pilot action in the Czech Republic focuses on Jeseník Region, North East of the country where SPAs of Bludov, Velké Losiny and Karlova Studánka are located.

Jeseník Region is part of the Olomouc Region, located in the central part of Moravia in the Czech Republic and extends into its northern part. Geographically, the area is divided into a northern mountainous part with the Jeseník Mountains and the southern one of the regions is formed by the flat Hana.

The town of Jeseník represents an important connection point and a SPA town with a unique location in the very heart of the mountains. Since its origins, the city has been connected with mineral wealth, which has flourished and declined alternately throughout history. And, in the first half of the 19th century, Vincenc Priessnitz, founded a hydrotherapy institute here.

In addition to Jeseník, the region can count on the presence of other valuable Municipalities, among these:

- Karlova Studánka, SPA village located in the district of Bruntál.
- Lipová-lázně, a picturesque mountain village located on the border of the Hrubý Jeseník and Rychlebské mountains, which offers rich opportunities for hiking, biking, cross-country and downhill skiing.
- Bludov with its natural thermal waters containing hydrosulphate ions used for baths in outpatient treatment.
- Velké Losiny, village that lies in the picturesque valley of the river Desná and one of the most visited places in the Jesenice foothills. It is known not only for its centuries-old SPA tradition, rich and interesting history, but also for a number of valuable cultural monuments.

During the last years, the whole area has been characterised by a very fast and dynamic development, especially connected with SPAs sector. The development of SPAs, in addition to offering important opportunities for social and economic development of the area, has brought with it significant concerns about the protection of the natural resources threatened by the growing urbanization and the increasing of touristic flows.



Therefore, based on the assumption that SPAs sector really could become the trigger for boosting forward the local development, the Pilot action has been designed as “a testing on-site process” of the Regional Working Group for a more sustainable, pro-environmental development of the SPAs.

The Czech partners - Mendel University in Brno and Jeseníky Association of Tourism (associated partner) invited the Regional Working Group, designed by the project as a participatory tool, to assess the weaknesses of the participatory planning approach in the area with the aim to deliver a set of recommendations addressed to the main territorial stakeholders to positive influence the process of protection and valorisation of SPAs natural resources.

1.7. MUNICIPALITY OF ACQUI TERME. PRODUCT ENVIRONMENTAL FOOTPRINT TESTING IN THE THERMAL DISTRICT OF ACQUI TERME

Panel 1: Overview

- Pilot action 7**
- ITALY** - Piemonte
- Main aim:** To evaluate the environmental impacts of the thermal products and services in the district of Acqui Terme, sensitizing public and private actors to a more conscious and respectful use of the thermal resources.
- Background:** The Product Environmental Footprint (PEF) methodology is introduced in order to assess the environmental impact of products and services. It consists of a LCA based method: it uses quantitative indicators, such as global warming potential, water consumption, natural resources consumption, to measure the environmental performances of products or services.

Panel 2: Indicators

- 16** Involved institutions
- 6** Number of trained persons
- 10** Main reports
- 1** Institutions applying project tools and/or services
- 1** Institutions adopting project strategies and/or action plans

Panel 3: Step by step

- Step 1: Identification of 3 SPA products and services
- Step 2: Ecological footprint of 3 SPA products and services
- Step 3: Mitigation measures aimed at protecting SPAs natural resources inspired by the PEF methodology application
- Step 4: Hypothesis and scenarios for relaunching the "former Military Baths" in Acqui Terme
- Step 5: Stakeholders engagement and training activities

Solutions for other SPAs

- PEF methodology recognized by the European Union will allow the transfer of the local experience to other territorial contexts, also at transnational level.
- Understanding and managing the complexity of the supply chain, upstream and downstream of the production / supply process.

Acqui Terme is a small town (about 20,000 inhabitants) located in the South-East of Piemonte region. The history of Acqui Terme has always been strongly linked to its thermalism: water has always been its hallmark and the SPA system its flagship. Already renowned since Roman times for its boiling hot springs, in the early 1900s, the SPAs were grandiose and were a source of pride for the city. In the new millennium Acqui Terme has continued this long SPA tradition, offering medical, wellness and beauty treatments in the thermal facilities built around its three springs.

Today Acqui Terme SPA cluster is passing through a profound crisis, specifically connected with the Covid-19 health emergency and its strong economic repercussions on the SPA and tourism system, that have led to a temporary closure of the main thermal facilities.

Within this context, the Municipality of Acqui Terme, which became the owner of the “Former Military Baths” SPA in 2017, is attempting a real relaunch of the SPA sector, which is considered an important driving force for the local economy and an excellence for Acqui Terme and the whole of Piedmont.

Basing on this framework, the main aim of the Pilot action has been to elaborate specific hypothesis and scenarios on the future regeneration of the “Former Military Baths” and to design future services/ products taking into account the complete life cycle of services and products. Already in the design phase, the entire life cycle of services/products has been assessed and how they “interact” with the environment, including the stages of pre-production (thermal water), production, distribution, use and reuse, final disposal. This methodology has made possible to understand and manage the complexity of the supply chain, upstream and downstream of the production process. Then criticalities have been



identified in the entire life cycle of the products/services, to hypothesize solutions aimed at saving and recovering energy and materials (in particular thermal water).

Thanks to the implementation of the Pilot action, the Municipality of Acqui Terme can count on a set of mitigation measures, implementable and devoted to face the effects chemical pollution, biological pollution, water pollution, sources consumption and impoverishment with the final aim to reach a Sustainable Integrated Quality and Environmental Management of “Former Military Baths” SPA facility, that could be considered in the wider concept of Thermal Green City.

In addition, the great merit of the pilot action has been to make clear the great potential of the area, already listed among the UNESCO Heritage as “Vineyard Landscape of Piedmont: Langhe-Roero and Monferrato” and particularly engaged with the topics of sustainable tourism, light mobility and valorisation of local identity, highlighting the uniqueness of the thermal resources defining them as potential trigger of a green revolution toward a full eco-sustainability.

1.8. MUNICIPALITIES OF MONTEGROTTO AND ABANO TERME. IMPROVEMENT OF SUSTAINABLE MANAGEMENT OF THERMAL NATURAL RESOURCES

Veneto is the 8th largest region in Italy, with a total area of 18,398.9 km² (7,103.9 sq. mi). Veneto is a heavily industrialised region, but also tourism is one of its the main economic resources (Venezia case); one-fifth of Italy’s foreign tourism gravitates towards Veneto, which is the first region in Italy in terms of tourist presence, attracting over 60 million visitors every year.

Of the seven provinces of the region, the Province of Padua is the most populous and has the greatest density, with 424. 81 persons per km², reaching 2268.58 in the city of Padua. The Euganean Thermal Basin is the largest thermal area in Europe with a size of 220 square miles, more than 10 Thermal Municipalities, 137 mining concessions, 230 extraction wells, 10 points of extraction level monitoring system of thermal water and ca. 12.000.000 m³/year of extracted thermal water.

Euganean Hills, territories protagonist of HealingPlaces stands in Padova Province and they are a group of hills of volcanic origin, made up of trachyte, and date back over 40 million years ago.



The Euganean Hills form the first Regional Park established in the Veneto (1989) and the area is also rich of thermal waters that come from the Pre-Alps and they travel for almost 80km to over 3000 meters of depth, in the dolomitic calcareous subsoil, enriched with mineral salts. They can reach temperatures of about 87°C.

These types of thermal waters produce numerous benefits and they were already known in the times of the ancient Venetians, so much so that they were widely exploited even in Roman times.

In this area, two main SPAs municipalities have been involved in the HealingPlaces project, as pilot areas: Montegrotto Terme and Abano Terme. The Unique Management of Homogenous Hydromineral Basin of Euganean Hills (Gestione Unica del Bacino Idrominerario Omogeneo dei Colli euganei), associated project partner, is the competent management authority (regional enactment of Veneto region) of the Euganean Thermal Basin, which has taken part to project actions in strength collaboration with its 10 thermal municipalities and Upper Adriatic Technology Park Andrea Galvani SCPA. The extension of G.U.B.I.O.C.E., estimated at about 23 km² within the extensive hilly area, includes, in a general context of safeguarding the environmental and hydrogeological structure, the territory of the Municipalities of Abano Terme, Arquà Petrarca, Baone, Battaglia Terme, Due Carrare, Galzignano Terme, Monselice, Montegrotto Terme, Teolo and Torreglia.

The pilot action, started from adaptation and testing of the common tool for integrated assessment of threats & pressures on main SPA resources for the local SPA district inside a natural protected area Regional Park of Euganean Hills. An in-depth analysis of environmental resources & impacts has been carried out by using this tool, including a monitoring system of water quality, characteristics, pressure and quantity (and possibly other elements). In addition, the environmental capacity of the area has been analysed.

The mobile App, developed in the project by Upper Adriatic Technology Park Andrea Galvani SCPA, has been adapted to local conditions, including information on thermal water conditions and characteristics of sites around SPAs (biodiversity, geology, landscape, relationship man-environment, etc) for use of technicians or tourists /visitors.

Now the virtual experience is developed as a storyboard that narrates the evolution of thermal water history from romans to nowadays. The main goal is to create awareness on stakeholders of the territory of Abano-Montegrotto by showing all potentials of the area as the largest area for preventive health in Europe.



PART 2

MAIN CHALLENGES TACKLED FROM SPA SYSTEMS IN CENTRAL EUROPE





2. THE FEASIBILITY TEST

In September 2021, a first draft of the Integrated Strategy was shared between all HealingPlaces project partners, representing the reference framework for the further development of its final version.

The report was intended as a sort of progress report containing the main evidences in terms of: existing pressures and potential threats on the SPAs CE system (derived from the analysis of WP1), but also from the main consultations with stakeholders within the Regional Working Groups (set up in the partner countries) and from the results highlighted by the pilot actions.

This report was made up of four parts. The first was dedicated to the presentation of the project partner and their territories, as well as the strategic role that the SPAs play in each of these different contexts for local development.

The second part illustrated the state of art of SPAs natural resources in the area inherent to the HealingPlaces project, reporting the main evidences that emerged from the regional and transnational analysis carried out within WP1. This part also highlighted the existing pressures and potential threats in order to ensure a more sustainable development of SPAs natural resources.

Finally, the last two sections of the document were intended as the backbone of the Integrated Strategy for the SPAs in Central Europe with some generic policy recommendations aimed at ensuring the transferability of project methods and results.

At that stage, the final parts were considered as “work in progress”. In fact, thanks to the analysis carried out within WP1 and the main lessons learned from the pilot actions in WP2, a set of guidelines was identified, which were then shared, discussed and modified by the project partners during the Workshop for the finalization and approval of the draft of the strategy.

The first draft of the Integrated Strategy became the main topic of the Workshop for the finalization and approval of the draft of the strategy (D.T3.3.4) which took place on the 8th of November 2021 with the aim of:

- share and discuss the structure of the report with the whole partnership and receive their feedback on the basis of the first version shared between the PPs;
- introduce the feasibility test, that each partner had to implement in their regions, involving the Regional Working Groups and relevant stakeholders.

The Feasibility Test was designed as an essential tool for testing in each PPs country the main evidences that emerged from the first draft of Integrated Strategy, not only within the project partnership, but also including suggestions and tips that emerged from the involvement of external stakeholders.



Therefore, the Feasibility Test took the form of a structured survey that the project partners were invited to share within the Regional Working Group in order to collect opinions, points of view and recommendations on five main topics:

- main potential threats detected for SPAs natural resources;
- measures that could be implemented to mitigate them;
- the sustainability and functional management;
- benefits delivered from a more sustainable management of SPAs natural resources;
- policy recommendations for a SPAs sustainable management.

The results of this process and the main suggestions collected became the fundamental pillars of the Integrated Strategy, as they were able to:

- collect the concerns of public institutions, private companies and the scientific community on the sustainable management of the SPAs. This process helped the strategy to develop in tune with the needs of the most significant groups;
- keep in touch with new and rapidly growing issues, this has allowed Integrated Strategy to keep pace with the times and with the growing changing expectations of the main territorial stakeholders;
- confirm or modify what has emerged from the project up to then thanks to the use of more critical points of view: “Critical friends can provide innovative and inspiring insights that otherwise could not be gleaned from internal consultations”.

This section will be dedicated to illustrate the main results of the Feasibility Test, as a key to interpret a complex and heterogeneous framework such as that of HealingPlaces. Therefore, the main results of the Feasibility Test were used for the following purposes:

- elaborate the mission, vision and key values of the Integrated Strategy;
- to verify the challenges identified during the implementation of the project’s activities and their intensity on SPAs natural resources;
- identify the environmental, socio -economic and managerial benefits from the implementation set of mitigation measures.

The Integrated Strategy was derived from these elements as a set of guidelines aimed at improving the sustainable management capacities of the CE SPAs, including innovative and reactive decision-making processes based on partnerships between local and regional authorities, the thermal sector, environmental and health management organizations.



3. EXISTING PRESSURES ON SPAS IN CENTRAL EUROPE

The implementation of the Feasibility Test has confirmed that the major challenges for the CE SPAs in the next future derived from pressures belonging to three macro areas, namely:

- policy / legislation;
- environment;
- socio-economic.

In terms of Policy / Regulation, it was established that the fragmentation of the regulatory framework is one of the main concerns for the stakeholders that participated in the testing phase. At the moment, in fact, there is still no single regulatory framework at European level and the rules on the establishment, management and control of health resorts and SPAs (including the use of natural healing resources) are autonomous in each Member State of the EU.

From this point of view, the main threats to sustainable management of thermal natural resources remain the consequences of a fragmented regulatory framework which, on the one hand, allows for a broad autonomy of each State, and on the other guarantees few safeguards for the sustainable management of natural resources.

In the Czech Republic, as well as in Hungary and Slovenia, the state policy on health resorts is implemented at national and local level. In Poland, state policy on healing waters is implemented at three levels: national, regional and local. On the other hand, in Croatian legislation, there is no term “statutory health resort” or “SPA resort”, and there are no regulations that can form a basis for granting such status. In Italy, the state policy regarding the health resorts is implemented at national and regional level and the thermal treatments services are included into the national healthcare system and the state has exclusive jurisdiction over the recognition of the therapeutic properties of mineral and thermal waters. Finally, in Austria, state policy regarding health resorts is implemented at state and local level.

From an environmental point of view, concerns about the effects of climate change on water resources prevail especially with regard to changes in temperature, wind and precipitation, as well as the intensification of human activities leading to an increase in natural land consumption and in the demand for groundwater on which climate change affects not only quantity but also quality.

Water depletion is a significant issue of concern, especially for Hungary and Croatia. Water resources (including thermal and mineral waters) are threatened by problems of overexploitation and poor quality of inland waters mainly due to the anthropogenic influence linked in particular to the growth of the population and of the cities which is exerting strong pressures on the water supply and on waste disposal.

Finally, from a socio-economic point of view, growing urbanization and its effects, such as deforestation, soil consumption, etc., have been identified by local stakeholders as the main pressures on the SPA ecosystem. In fact, contemporary urbanization has been characterized by a very extensive form of land consumption for urban uses with damaging effects on the environment. The expansion of urban areas (resulting from the increase in population) has led to marked alterations in natural processes, environmental quality and the consumption of natural resources. Indeed, urban landscapes have hosted a number of contaminants that have impacted water quality.

However, urbanization still appears to be an inevitable process especially in the Lower Silesian Voivodship and in Veneto Region which, if it cannot be radically slowed down, must be prevented from using risky practices.



4. POTENTIAL THREATS ON SPAS IN THE NEXT FUTURE

If, on the one hand, the existing pressures on the Central European SPA systems have confirmed the main results of the systematic analysis carried out as part of WP 1, the vision of regional stakeholders on the forthcoming future threats to Central European SPAs differs slightly from the current situation.

From a political and legislative point of view, the main concern is the short-range view of the SPA management authority. In fact, after a period of great uncertainty such as the one that the SPA sector is going through due to the pandemic, a short-range vision that sets operational objectives to survive in the immediate future but does not design strategies for the next future has been particularly damaging.

The management of water resources, in general and SPAs in particular, represents an asset of strategic importance for the future development and protection of the territories. On the basis of this complex context, the application of a practical, coordinated and multilevel management seems to be a good option to face the challenges related to the integration of heterogeneous levels, especially in the SPAs sector in which the institutional design and management are sometimes inefficient.

From an environmental point of view, if on the one hand the concern for the effects of climate change is confirmed and still dominant, the apprehension regarding the depletion of mineral and thermal water affirms more strongly. There are many reasons why water resources are under pressure: population growth, economic growth, growing energy demand, intensive agriculture, rapid urbanization, growing tourism and recreation, as well as a lack of adequate supply and treatment facilities or institutional arrangements water management. And, as far as thermal and medical waters are concerned, the issue of reuse (readaptation) of post-bathing has become crucial for an effective management of water waste in SPAs.

Finally, the increase in mass tourism and the consequent increasing urbanization have emerged as key future challenges for the protection of SPA natural resources, particularly in Poland and Czech Republic. A large flow of people pouring into an area at the same time can put enormous pressure on it and lead to impacts such as soil erosion, increased pollution, discharges into the sea, loss of natural habitats, increased pressure on endangered species and increased vulnerability to forest fires. In addition, it often strains water resources and can force local populations to compete for the use of critical resources.

The tourism industry generally uses water resources excessively, which can lead to water shortages and degradation of water resources, as well as generating a greater volume of wastewater.

Furthermore, the thermal sites are particularly threatened by the new phenomena of aging tourism. Indeed, the aging of the population in developed countries poses new challenges not only to health systems, but also to tourism and leisure.



5. SUSTAINABLE AND FUNCTIONAL MANAGEMENT OF SPAS NATURAL RESOURCES

In recent years, sustainability has become a topic of growing concern for politicians, academic communities but also civil society. The growing demand for environmentally and socially responsible products and services has encouraged supply chains to place more emphasis on sustainability.

Taking inspiration from the statements of the Environment (Wales) Act 2016, sustainable management of natural resources can be defined as: “using natural resources in a way and at a rate that maintains and enhances the resilience of ecosystems and the benefits they provide. In doing so, meeting the needs of present generations of people without compromising the ability of future generations to meet their needs, and contributing to the achievement of the collective well-being”.

Sustainability is also one of the key concepts of the HealingPlaces project. Its goal is to support the sustainable development of SPAs while protecting the unique resources that form their basis. Natural heritage, including natural deposits of mineral waters and hot springs, is a well-known common feature of CE regions. And, now more than ever, water resources are assumed to face numerous and significant challenges. Indeed, on the one hand, the aging of infrastructures and the lack of funding sources continue to plague CE systems and, on the other hand, the increased use of automation and technology, key tools for achieving efficiency, are themselves vulnerable to disruption.

When asked about these issues, the main local stakeholders expressed a general concern regarding the need to protect and enhance the SPA natural ecosystem, aware that:

- climate change is happening rapidly and tourism is strongly influenced by the effect of global warming;
- the aging of society and increasing urbanization will challenge the environment and its resources;
- the water resource will increasingly become a strategic resource for countries.

But they are also convinced that to make the management of the SPA sustainable, it is also essential to consider the functional aspects of the daily management of water resources.

Therefore, starting from the assumption that each SPA organization must make choices regarding its own domain activities, the investment priorities of scarce resources and its overall objectives, the stakeholders involved in the feasibility test were asked to explore possible solutions for sustainable solutions, but also functional management of the SPA resources.

In this sense, some options have been provided to indicate their effectiveness, such as:

- act to improve and encourage the Wastewater and Waste Management System;
- increase the application of web-based tools (App or other ICT tool) in order to provide interactive information, using them as guides for both technicians and users of thermal sites in order to increase the knowledge and awareness on the environment and the impacts of thermal activities on it;
- introduce the use of science-based methods (Product Environmental Footprint, Life Cycle Analysis), as a common methodological approach to assess, display and benchmark the environmental performance of products, services and companies based on a comprehensive assessment of environmental impacts.



From the testing phase clearly emerged as the wastewater and thermal water waste management is well known and proved to be a very effective method for reducing negative impacts on the environment, water and soil.

And, while in some contexts, like the Austrian one, this practice is widespread, in others like that of the Czech Republic it is still little used. Therefore, it should have priority as a common management practice for CE SPAs, as stated by a public stakeholder from the Czech Republic:

“Prioritize the system of water waste management, surplus energy and secondary resources is one of the keys to ensuring better environmental sustainability in the Jeseník SPA”.

On the other hand, web-based tools have been identified as a significant opportunity to link sustainability and the functional needs of the management of SPA natural resources. The ability to access a wide range of information from a variety of interconnected sources is essential for systemic protection and sustainable resource management.

“From our point of view, it is highly recommended to use the advanced science-based tools of data processing, and web-based solutions to improve the examination and to better understand the current and future state of the used groundwater reserves”.

[Stakeholders from Croatia]

Furthermore, the web-based tools can also be applied in the decision-making support process by addressing changes in the legal system, ensuring the consistency of individual legal acts that affect the various aspects of SPA development and increasing the availability of data and the “reciprocal vision” of the single regulations.

Still little known and widespread are the scientifically based methods which, however, have aroused particular interest in Veneto and Croatia as effective methods for linking the operational and sustainable and functional dimensions of the management of SPAs natural resources.



5.1. MULTIPLE BENEFITS FROM A SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES

Strongly linked to the issue of the connection between functionality and sustainability of the management of SPAs natural resources, the stakeholders were asked to identify the benefits, in economic and social terms, of a more sustainable management of thermal water.

Indeed, there is no doubt that an effective management of sustainability could have a positive influence in various areas, such as:

- innovation for growth: sustainable development, in addition to meeting environmental and social needs, can bring economic improvement for organizations in terms of additional revenue streams for the sale of new and more attractive products and services;
- reputation and brand: good sustainable management can serve as an enhanced license to operate through better relationships with regulators, non-profit organizations, citizens and other stakeholders;
- cost savings: reducing energy, reducing waste and minimizing inefficiencies and risks;
- resilience: minimizing vulnerabilities and anticipating upcoming problems, such as new regulations, improving relations between the SPA management authority and regulators, non-profit organizations, citizens and other stakeholders.

Basing on these assumptions the stakeholders have been asked to share their opinions on the benefits delivered by a more sustainable management of SPAs natural resources and from their answers clearly emerged “the cost saving issue” as predominant not only from an economic but also for social and political point of views.

“Reduction of the operating costs of SPA facilities due to the reduction of energy consumption and waste management (post-treatment water) will improve the local climate and the image of the SPA’s management. Moreover, it will contribute to the protection of thermal water resources.

[Stakeholder from Hungary]

While, at the same rates, they attest to the economic benefits, the improvement of the brand reputation and the improvement of the relationship between the main stakeholders. Particularly significant was the declaration of one stakeholder from Poland, as reported below:

“I believe that the main benefit is the improvement of relations between resort management bodies and regulatory bodies (local governments), and, consequently, the development of a common position and objectives related to the sustainable development of the resort.”



PART 3

AN INTEGRATED STRATEGY FOR SUSTAINABLE MANAGEMENT OF SPAS NATURAL RESOURCES IN CENTRAL EUROPE





6. STRATEGY FOR SUSTAINABLE MANAGEMENT OF SPAS NATURAL RESOURCES IN CENTRAL EUROPE: MISSION, GOAL, VISION AND VALUES

As described in the previous part, there are many reasons why water resources are under pressure: population increase, economic growth, intensive agriculture, rapid urbanization, growth of tourism and leisure activities, effects of climate change, inefficient technologies, lack of mechanism of conflicts mitigation among stakeholders or institutional arrangements for water management, as well as the lack of proper supply and treatment facilities.

Therefore, the first and essential step to achieve the goal of a more sustainable management of SPAs natural resources inevitably passes through a reduction of the impacts of these pressures.

And in this sense the *Integrated Strategy* has been developed (*Fig. 3*). Its mission is to broaden knowledge and awareness of the influence that these factors exert on groundwater deposits, in particular by sensitizing policy makers and SPAs managing authorities in order to build multilevel and multi-territorial governance models for a sustainable management of SPAs natural resources.

This mission responds to the *general goal* of providing a new participatory governance model for SPAs management bodies in the field of sustainable management, by promoting the ‘shared resource’ aspect and strengthening the links between local, regional, national and European action plans, by pursuing the following *strategic specific objectives* of:

- harmonize the regulations in each member states regarding establishment, management and control of health resorts and SPAs by creating an EU legal regulation dedicated particularly to health and SPAs resorts activities;
- enhance the perception of SPAs as a shared property of the communities and a factor of guaranteeing the sustainability of these communities, also by establish a governance model based on a set of values, visions and missions shared among the main public, private and academic stakeholders;
- mitigate the effects of climate change on the quality and quantity of groundwater and understand the significant issues, values and objectives for the sustainable development of SPAs;
- improve the geological knowledge on thermal water resources to understand and explore where traditional operational / functional, managerial and decision-making processes can come into conflict with the theme of sustainable development;
- prevent the negative effects of on water and SPA natural ecosystems due to the increasing trend of the urbanization of new areas;
- promote the responsibility of all those involved in health tourism for the sustainable development of the SPA environment also, establishing specific short and long-term functional objectives for the SPAs in Central Europe in relation to the development of their sustainability.



Consistent with the mission, the goal and specific objectives, *the vision* on which the Integrated Strategy is based, affirms that unique natural resources of CE SPAs are a key element to promote the development of areas and regions, and they should be managed in a sustainable way, in particular based on participatory and cross-sectoral approaches.

The participatory approach and the cross-sectoral approach, each of which respond to different aims and objectives, have been identified as *values* of the Strategy.

The *participatory approach* is based on a balanced dialogue between scientists, public bodies, stakeholders, decision makers, companies and end-users to generate reliable knowledge in design with nature, social and ecological responsibility, governance and ethics. For the elaboration of the Strategy, the application of this approach served to lay the foundations for concerted action towards a more sustainable governance model. The involvement of a wide range of actors such as national policy makers, research funding organizations, relevant research communities from academia and industry was considered a fundamental prerequisite for achieving a long-term impact on addressing challenges related to SPAs. Within HealingPlaces, involvement meant, from the outset, the active participation of actors not formally included in the HealingPlaces partnership and was not considered as an action on a ‘to-do list’, but as a result of a strategic process, adapted to a specific goal.

The *cross-sectoral approach*, the effective interaction of different types of stakeholders on which the project has been able to count, has made it possible to address a complex issue such as the sustainable management of the SPAs natural resources, taking into account the points of view of a multidisciplinary and multilevel panel of stakeholders able to cover the most important expectations and contributions from different fields of action (environmental, political, social and economic aspects). Indeed, the natural resource management process recommends the inclusion of stakeholders and their interests in decision-making and planning processes, because it contributes or increases the likelihood of better decision making, greater social learning and community support for the results of the project. Therefore, as in the case of the HealingPlaces project, it was necessary to establish a dialogue between subjects with different points of view, especially when the ecological and social dynamics are strongly interdependent. This mechanism, although it often highlighted conflicting perspectives among the different actors, avoided wasting resources at a later stage that would have led to a halt in the process. Therefore, especially thanks to the Regional Working Groups, made up of a multiplayer panel of professionals, the issue of SPAs sustainable management was addressed with a multidisciplinary knowledge, expression of different points of view. Therefore, the HealingPlaces Integrated Strategy focuses on Governance and Management, providing concrete approaches and suggestions on how to improve the sustainable development of SPAs in the CE area and exploring an innovative and reactive decision-making process built thanks to a participatory approach to partnerships and a multi-level panel of stakeholders.



FIG. 3 - MISSION, GOAL, VISION AND VALUES OF INTEGRATED STRATEGY FOR SUSTAINABLE MANAGEMENT OF SPAS NATURAL RESOURCES



EXTENDING KNOWLEDGE AND AWARENESS ON THE INFLUENCE THAT VARIOUS RISKY FACTORS EXERCISE ON GROUNDWATER RESOURCES



PROVIDING A NEW PARTICIPATORY GOVERNANCE MODEL FOR SPAS MANAGEMENT BODIES IN THE FIELD OF SUSTAINABLE MANAGEMENT



UNIQUENESS OF SPAS NATURAL RESOURCES AS KEY ELEMENT TO PROMOTE THE DEVELOPMENT OF AREAS AND REGIONS



PARTICIPATORY AND CROSS-SECTORAL APPROACHES

Source: HealingPlaces Project, Work Package 3



7. STRATEGIC GUIDELINES

The following paragraph contains practical suggestions to provide users (policy makers, decision makers, SPAs managing authorities) with practical activities related to the sustainable management of the SPAs natural resources.

Specific challenges and a set of actions and policy recommendations capable of mitigating their negative effects have been detected thanks to (Fig. 4):

- the analysis carried out within WP1 and then tested by the involvement of the main territorial stakeholders first within the Regional Working Groups and then in the implementation of the feasibility test;
- main results emerging from the implementation of the pilot actions, for each of the three macro areas (Political/Legislative, Environmental and Socio-economic), revealed as particularly risky for the implementation of sustainable management of SPAs natural resources (Fig.5).

FIG.4 - STRATEGIC GUIDELINES STRUCTURE

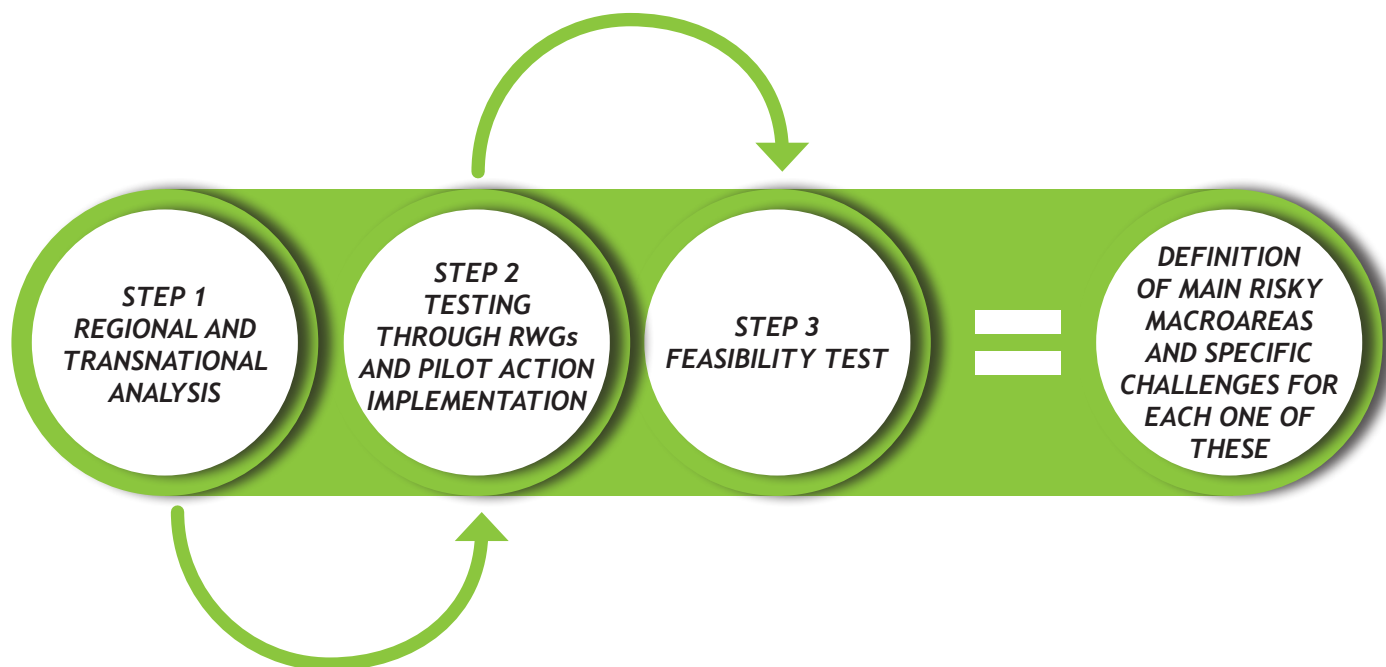


Source: HealingPlaces Project, Work Package 3

In this way, a set of strategic guidelines covering a representative range of themes will be made available to users who could benefit from the important suggestions contained therein. Subsequently, a series of policy recommendations have been elaborated and collected in the final part of the report, addressed to policy makers, decision makers and managerial authorities at the EU, national, regional and local levels.



FIG. 5 -ROADMAP TOWARDS THE ELABORATION OF INTEGRATED STRATEGY



Source: HealingPlaces Project, Work Package 3



7.1. RISKY MACROAREA: POLITICAL AND LEGISLATIVE

7.1.1. CHALLENGE 1: FRAGMENTARY LEGISLATION AT EU, NATIONAL AND REGIONAL LEVEL

Critical issues tackled

EU law regulates only selected aspects of SPA activities in member countries, allowing for a broad autonomy of each state, and on the other hand guarantees few safeguards for the sustainable management of natural resources.

The main EU main legislative Acts on thermal resources are:

- Directive 2011/24/EU of the European Parliament and of the Council of 9 March 2011 on the application of patients' rights in cross-border healthcare regulates access to the healthcare, including health resort's treatment in EU countries.
- Directive 2009/54/EC of the European Parliament and of the Council of 18 June 2009 on the exploitation and marketing of natural mineral waters (Official Journal EU L 164 of 26.06.2009) - regulates extraction and marketing of the natural mineral waters within EU, however the regulation does not apply to mineral and thermal waters with scientifically confirmed healing effects.
- Consolidated version of the Treaty on the Functioning of the European Union (Journal of Laws EU 326/91, PL 26.10.2012) - regulates, among others, the question of public aid to the enterprises. According to art. 107 of the Treaty, the EU countries cannot support activities that distort competition across EU. However, the financing of the health care enterprises that operate as an element of the particular national health care system are not covered by this regime, based on the exception of art. 106 (2) of the Treaty. According to this article the activities of SPA enterprises can be considered as those which 'provide services of general economic interest'.
- Directive 2001/83/EC on the Community code relating to medicinal products for human use (Official Journal of Laws 311, 28/11/2004, p. 67 - 128) - stresses that any rules governing the production, distribution and use of medicinal products must be to safeguard public health.

Strategic objective no. 1

Harmonize the regulations in each member states regarding establishment, management and control of health resorts and SPAs (including the use of healing natural resources) by creating an EU legal regulation dedicated particularly to health and SPAs resorts activities.



Strategic actions to be implemented

- Consolidation of a transnational and interdisciplinary network of stakeholders able to contribute to the elaboration of a common legislative framework at EU level in which it would be possible to define the same parameters / properties of therapeutic waters for EU countries and to develop a set of common regulations on the protection and valorisation of healing waters at EU level.
- Promotion of the thermal resource as “shared and public property” in order to defend the thermal water resources against unsustainable private investments which could provide high profits, but which at the same time could involve an extensive use of resources.

7.1.2. CHALLENGE 2: SHORT RANGE MANAGEMENT AND HANDS-OFF GOVERNANCE

Critical issues tackled

The management of healing waters, in HealingPlaces countries, has often turned out to be the result of local interests among stakeholders who have acted based on individual competences and stakes, creating an inefficient institutional design and non-robust governance. Management and governance mechanisms have long been largely centralized and top-down, focusing primarily on conservation objectives.

Strategic objective no. 2

Establish a governance model based on a set of values, visions and missions shared among the main public, private and academic stakeholders able to develop a long-term strategy for the preservation of SPAs resources.

Strategic actions to implement

- Application of a practical, coordinated and multilevel governance to face the challenges concerning the integration of heterogeneous levels of decision-making process governed by their own rules and the integration of political and natural scales examined by scientific concepts often difficult to synthesize.
- Concerted actions for the improvement of the relation between the SPAs management bodies and regulatory bodies (national, regional and local governments), and, consequently, the development of a common position and objectives related to their sustainable development.



TAB.1 - SUMMARY TABLE OF STRATEGIC GUIDELINES TO MITIGATE POLITICAL AND LEGISLATIVE SPECIFIC CHALLENGES

RISKY MACROAREA: POLITICAL AND LEGISLATIVE			
SPECIFIC CHALLENGE	CRITICAL ISSUE TACKLED	STRATEGIC GOAL	STRATEGIC MITIGATION ACTIONS
FRAGMENTARY LEGISLATION AT EU, NATIONAL AND REGIONAL LEVEL	EU law regulates only selected aspects of SPAs activities in member countries, allowing for a broad autonomy of each state, and, on the other hand, guarantees few safeguards for the sustainable management of SPAs natural resources	Harmonize the regulations in each member state regarding the establishment, management and control of health resorts and SPAs (including the use of healing natural resources) by creating an EU legal regulation focused on health and SPAs activities	Consolidation of a transnational and interdisciplinary network of stakeholders able to contribute to the elaboration of a common legislative framework at EU level
			Promotion of the thermal resource as a “shared and public property” in order to defend the thermal water resources against unsustainable private investments
	Inefficient institutional design and non-robust governance of healing waters, as result of local interest among stakeholders who have acted based on individual competences and stakes	Establish a governance model based on a set of values, visions and missions shared among the main public, private and academic stakeholders able to develop a long-term strategy for the preservation of SPAs resources	Application of a practical, coordinated and multilevel governance to integrate heterogeneous levels of decision-making processes
			Implementation of concerted actions for the improvement of the relation between the SPAs management bodies and regulatory bodies to boost the sustainable management of mineral/thermal waters

Source: HealingPlaces Project, Work Package 3



7.2. RISKY MACROAREA: ENVIRONMENTAL

7.2.1. CHALLENGE 3: MITIGATE THE EFFECTS OF CLIMATE CHANGE

Critical issues tackled

Within the HealingPlaces countries, it was confirmed that the effects of climate change have affected all natural ecosystems, directly and indirectly. In particular, aquatic ecosystems are deeply affected by greater variability in rainfall and more extreme weather events caused by climate change that can lead to longer periods of drought and floods, which directly affect the availability and dependence on groundwater. In long periods of drought there is a greater risk of groundwater depletion, especially in the case of small and shallow aquifers. Climate change affects not only the quantity of groundwater, but also the quality.

Strategic objective no. 3

Mitigate the effects of climate change on the quality and quantity of groundwater.

Strategic action to implement

- Encourage the management bodies of the SPAs to regularly aggregate their monitoring results on the state of the water and the impact on the environment. They should feature them on the website, social media, local media and other channels to show trends and create awareness among local communities.
- Improve (if they already exist) or create National Water Management Plans, reporting annually the information on the state of the water in order to make it more easily available to the stakeholders in the sector.
- Install air quality measurement sites in close proximity to the area in order to assess the actual impact of climate change on air quality.



7.2.2. CHALLENGE 4: DEPLETION OF WATER

Critical issues tackled

Water depletion is one of the major impacts of climate change on the SPA sector and an issue of great concern among HealingPlaces regions. Water resources in Europe are threatened by a variety of human activities, which cause problems of overexploitation and poor quality of inland waters. Not all water uses put the same stress on water resources, but in general, population and urban sprawl are putting a lot of pressure on water supply and waste disposal. SPA systems are particularly threatened by population growth, economic growth, intensive agriculture, rapid urbanization, growing tourism and recreation, as well as a lack of adequate supply and treatment facilities or institutional arrangements for water management.

Strategic objective no. 4

Improving the geological knowledge on thermal water resources to understand the possible responses of the geothermal regime and the flow system in various extraction scenarios, also in order to give priority to the reuse of thermal and medical waters, the issue of reuse (readaptation) of the post-bathing water appear to be crucial for effective water waste management in SPAs

Strategic actions to implement

- Implement a joint interdisciplinary panel of stakeholder groups (mainly representatives of SPA municipalities and SPA managers and others) who, with the support of experts, could develop an analytical tool to assess the resources in the SPA taking into account their availability, rate of exhaustion and possible pressures. The results provided by the tool could be used to develop a targeted development strategy for SPAs and monitor its implementation. The tool should make it possible to analyse and assess the risk of resource exhaustion and allow the planning of measures to reduce the excessive use of resources.
- Periodically update the thermal water resources documentation and the estimate of the resources available for each water system / hydrogeological unit. Then promote the reuse of the recycling of thermal and medicinal waters (post-treatment) through the application of innovative methods.
- Work to achieve a balance between the abstractive uses of water (abstraction for public water supply, irrigation, and industrial use), in-stream uses (recreation, ecosystem maintenance), discharges of effluents, and the impacts of diffuse sources.



TAB. 2 - SUMMARY TABLE OF STRATEGIC GUIDELINES TO MITIGATE ENVIRONMENTAL SPECIFIC CHALLENGES

RISKY MACROAREA: ENVIRONMENTAL			
SPECIFIC CHALLENGE	CRITICAL ISSUE TACKLED	STRATEGIC GOAL	STRATEGIC MITIGATION ACTIONS
MITIGATE CLIMATE CHANGE EFFECTS	Aquatic ecosystems are deeply affected by greater variability in rainfall and more extreme weather events that can lead to longer periods of drought and floods	Mitigate the effects of climate change on the quality and quantity of groundwater	Encourage the management bodies of the SPAs to regularly aggregate their monitoring results on the state of the water and the impact on the environment
			Improve (if they already exist) or create National Water Management Plans.
			Install air quality measurement sites in the immediate proximity of the SPA areas
DEPLETION OF WATER	Water resources in Europe are threatened by a variety of human activities, which cause problems of overexploitation and poor quality of inland waters	Improving the geological knowledge on thermal water resources to understand the possible responses of the geothermal regime and the flow system in various extraction scenarios	Elaboration of analytical tool to assess the risk of resource exhaustion and allow the planning of measures to reduce the excessive use of resources
			Periodically update the thermal water resources documentation and the estimate of the resources available for each water system/hydrogeological unit
			Work to achieve a balance between the abstract uses of water in-stream uses, discharges of effluents, and the impacts of diffuse sources

Source: HealingPlaces Project, Work Package 3



7.3. RISKY MACROAREA: SOCIO-ECONOMIC

7.3.1. CHALLENGE 5: GROWING URBANIZATION

Critical issues tackled

Within the HealingPlaces regions, urbanization is a major driving force behind the formation of today's land use systems that often strain an area's water resources. The expansion of urban areas (resulting from the increase in population) has led to marked alterations in natural processes, environmental quality and the consumption of natural resources. Indeed, urban landscapes host a range of contaminants that affect water quality, where new contaminants continue to pose new challenges to monitoring and treatment regimes. As well as the sealing of land issue that significant restricts and disturbs the natural groundwater recharge pattern.

Strategic Goal no. 5

Urbanization still appears to be an inevitable process that cannot be stopped. Therefore, it is really important to prevent future pressures and threats to the natural environment associated that the socio-economic development could cause.

Strategic actions to implement

- Implement restrictions for the urbanization of drainage and water circulation areas.
- Design zones for the protection of thermal and medicinal water intakes and specify the mandatory orders and prohibitions obligatory within these areas.
- Strategically and systematically plan the development of green infrastructures in the municipality and/or around the SPAs with the aim of reducing the impact of existing heat islands and preventing the emergence of new ones due to extensive urbanization.
- Use a public-accessed monitoring tool in order to control the trends of the urbanization and other anthropogenic activities (landcover index).



7.3.2. CHALLENGE 6: INCREASING MASS TOURISM

Critical issues tackled

The relationship between health tourism and the environment is two-way: most health tourism is very dependent on a clean environment, but at the same time it also has an impact on the environment due to the excessive use of water resources, mobility and facilities who often insist on vulnerable landscapes and ecosystems. In a SPA context, the main impacts of over-tourism phenomena could lead to water shortages and degradation of water supplies, as well as generating a greater volume of waste water.

Strategic goal no 6

Promote the responsibility for all those are involved in health tourism should to take responsibility for sustainable development of the SPAs environment.

Strategic actions to implement

- Educate the users of health resorts as well as patients and residents to appropriate use of environmental resources in health resorts.
- Create ad hoc awareness campaigns concerning the impact of water consumption on lowering of the groundwater level, especially in the areas where shallow aquifers are extracted or the exploited therapeutic waters mix with ordinary waters or remain in hydraulic connection with them.



TAB. 3 - SUMMARY TABLE OF STRATEGIC GUIDELINES TO MITIGATE SOCIO-ECONOMIC SPECIFIC CHALLENGES

RISKY MACROAREA: SOCIO-ECONOMIC			
SPECIFIC CHALLENGE	CRITICAL ISSUE TACKLED	STRATEGIC GOAL	STRATEGIC MITIGATION ACTIONS
GROWING URBANIZATION	The expansion of urban areas has led to marked alterations in natural processes, environmental quality and consumption of natural resources. The urbanization is a process that cannot be stopped	Prevent the negative effects on natural ecosystem (including water and thermal ecosystems) due to the increasing trend of the urbanization of new areas	Implement restrictions for the urbanization of drainage and water circulation areas
			Design zones for the protection of thermal and medicinal water
			Strategically and systematically plan the development of green infrastructures in the municipality and/or around the SPAs
			Use a public-accessed monitoring tool in order to control the trends of the urbanization and other anthropogenic activities (landcover index)
INCREASING MASS TOURISM	Water shortage and degradation of water supplies, greater volume of water waste as the main impacts of tourism growth	Promote the responsibility for all those are involved in health tourism, who should take responsibility for the sustainable development of the SPAs environment	Educate the users of health resorts as well as patients and residents
			Carry out ad hoc awareness campaigns

Source: HealingPlaces Project, Work Package 3



8. POLICY RECOMMENDATIONS

As a compendium of the main elements highlighted in the strategic actions, four policy recommendations have been identified as described below, addressed to policy makers and at EU, national, regional and local levels.

Place thermal and mineral water resources at the centre of the broader process of territorial actions toward the “Green City area” goal, in accordance with New European Bauhaus initiative and the European Green Deal.

Assuming that in the next future, even more and more cities need to be prepared to face climate change and extreme weather phenomena, especially thermal cities which are generally located in potentially fragile territories, the evolution towards the concept of “green city” seems unavoidable. Green cities are defined as dynamic regenerative systems that evolve over time, and which through careful measurement of the phenomena progressively improve the management of Water, Mobility, Material, Green Energy and Urban Agriculture. The green city rests its foundations on the efficiency of energy resources and on the basic principles of the circular economy which, in SPA contexts, should specifically concern the application of large-scale water waste management systems, as well as the use of thermal resource for the production of green energy.

A set of guidelines to lead this process should be developed at the regional level, in order to support the municipalities in the elaboration of Action Plans toward the goal of green cities.

Promote the design of an analytical common tool to assess and monitor the status of mineral and thermal water resources in CE SPAs areas, in order to establish long-term plans for the protection and valorisation of SPAs heritage at the regional and local levels.

Policy makers need to take decisions on the enhancement and protection of SPAs natural resources on the basis of scientific information. The realization of an analytical tool - the result of the engagement of an interdisciplinary panel of stakeholders (SPA municipalities, SPA managers, geologists etc...) in the designing and testing phase - could allow to assess and monitor the risks related to the water flows, depletion rates and detect possible harmful pressures on the CE SPAs areas (pollution of groundwater, hydrogeologic extreme phenomena, land cover rates etc...). The tool, based on common and shared dataset of scientific information, could be fundamental for the elaboration of long-term development strategies (at local and regional level).



Promote raising awareness initiatives at EU, national, regional and local level addressed to a wide range of target groups (public administrators, private companies, academic members, citizens, SPAs users etc.).

The environmental awareness of the end-users of thermal and mineral waters, referring in particular to guests, patients but also to residents of health resorts, was generally insufficient.

The lack of information of this group of people often led to an inappropriate use of environmental resources and to their deterioration (overuses of water, difficulties in waste management, etc.).

In this sense, the public authorities as well as SPA managers should proactively face the challenge of protecting the SPA resources, not acting in dispersive way but through the implementation of integrated measures. Therefore, it could result particularly useful to create Local Plans for the implementation of Environmental Awareness Activities, designed by an interdisciplinary panel of stakeholders and managed by the municipality/ies representatives or SPAs management authorities. The Plan should be targeted to a general public (SPAs end users and residents) and it should include communication and information campaigns, educational actions and leisure activities (exhibitions, guided tours, festivals, fairs, etc.).

Promote the knowledge about the multiple benefits of the application of a more sustainable management of SPAs natural resources and promote specific public fundings on green investments.

Reduction of the operating costs of SPAs facilities due to the adoption of more sustainable behaviour from the side of the management authorities have to be promoted not only with targeted and periodical information campaigns but also through specific public fundings that could concretely boost the green investments on the facilities (water waste management system, green energy uses etc...). Indeed, a more sustainable management of natural resources could influence not only the company's cost management by cutting maintenance costs (energy reduction, lower waste rate etc...), but also improve the brand reputation of the health resorts make it more appealing for the hosts.

In addition, sustainable regional development strategies and health tourism strategies based on the natural resources of healing and thermal waters could be elaborated, especially referring on rural areas by introducing at EU level the best practices of international and interregional contracts to secure a sustainable use the natural resources of healing water and to secure the resources in the long run.



9. CONCLUSION

With the Integrated Strategy, HealingPlaces project not only defines what partners have learned and experienced, but also identifies methods and set of recommendations for improving policies that can be transferred to local, regional and EU level in the medium and long term.

It clearly emerges that the important role of the SPAs in Central Europe is currently threatened by several challenges acting on integrated and highly interdependent levels.

The environmental threats affecting the quantity and quality of groundwater, the over tourism phenomena and urbanization that determine the depletion of water resources, and the fragmented legal and political context made up mostly by single-players acting on the basis of their own interests; outline a framework in which becomes increasingly urgent implement concerted intervention for the protection of natural resources.

To this little encouraging framework, the Integrated Strategy contraposes participatory processes and multi-territorial and multi-level governance models able to promote an overall vision of sustainability thanks to the application of the key principles of the circular economy, the elaboration of co-design tools and the involvement of local communities and improving the skills of policy makers.

The Integrated Strategy aims at increasing the awareness of decision makers and acquiring a political commitment to the enhancement of the natural resources of the SPAs and ensuring the transferability of the results outside the partnership through a global transnational approach, to consolidate political support.

Science plays a central role in this process, as the fundamental and unavoidable pillar on which policy and decision makers have to refer to take informed decisions and thoughtful directions toward more sustainable management of SPAs resources.