

D.T.2.2.3
**STATE OF THE ART
AND MONITORING
SYSTEM
REQUIREMENTS FOR
RISK MANAGEMENT,
REUSE, ENERGY
PERFORMANCES**

D.T 2.2.3 – BILINGUAL GUIDE-LINES FOR THE LOCAL
DEVELOPMENT OF A MONITORING PLAN FOR THE HBA

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EMPTY TEMPLATE

FOREWORD

The goal of this deliverables is double:

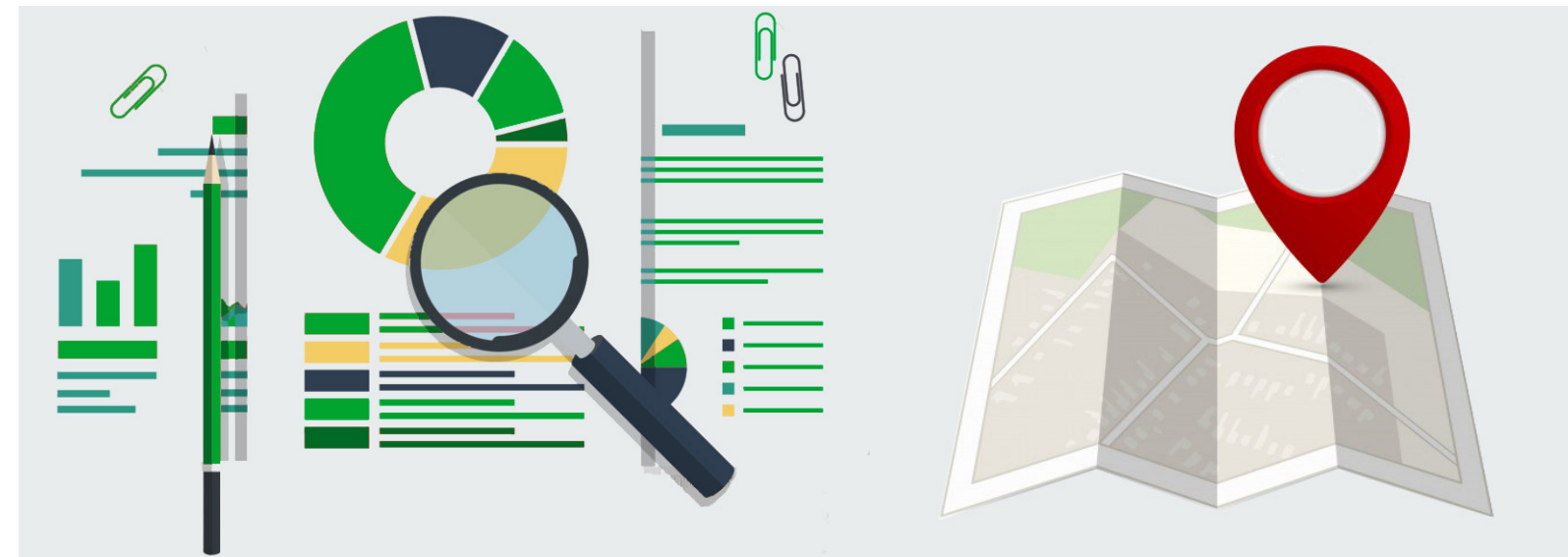
***first**, we want to collect from PPs all the **desires** about monitoring of HBA's changes and needs at the current moment. The goal is to discover all the issues that a monitoring activity could try to give an answer, also in order to implement a DT224 able to host all the requested functions (and not only those related to the pilot actions).

*** second**, we would like to have a framework on the existing **opportunities** related to the data to involve in the monitoring process. Every local Municipality or Authority has a specific situation, but we want to try to understand which are the common problems or features related to the collection of data, the timing of control's and updating activities etc, in order to finalize the DT224 able to be adapted to every local situation.



CHAPTER 1

SPECIFICATIONS AT LOCAL LEVEL OF THE PILOT AREAS





1.1 MANTOVA - ITALY (PP1)

TITLE	STATE OF THE ART AND MONITORING SYSTEM REQUIREMENTS FOR RISK MANAGEMENT, REUSE, ENERGY PERFORMANCES
FINAL DELIVERABLE	D.T 2.2.3 - Bilingual guide-lines for the local development of a Monitoring Plan for the HBA
AUTHORS (Organization/s)	PP1

INTRODUCTION

Among the topics of considerable importance for the old town sustainable management, in addition to the innovative theme of existing built heritage energy efficiency increase (that today in Italy still suffers from the conflict between the exploitation of cultural heritage and the energy efficiency technologies), the need to contrast the desertification of old towns phenomena acquire a significant importance Mantova city centre follows the general trend of decentralization and consequent desertification towards less protection constraints areas of the city in which localization is therefore both for citizens and companies.

In this context an essential element for the sustainable management of the historical asset is the maintenance of essential uses and the simplification of new residing citizens settlement process as well as new activities and services, in accordance to the city cultural heritage protection characteristics.

The Mantova pilot action focuses on urban regeneration concept, introduced both by national law proposal of land management and by Regional Law 31/2014, then declined as a coordinated set of urban-building interventions, urbanistic restoration measures and social initiatives as built space regeneration, urban structure reorganization (through the realization of new and the restoration of existing

equipments, infrastructures, green spaces and services, the regeneration of built planning ecological infrastructures to increase urban environment biodiversity).

The critical issues analysis and rereading, guiding the rethinking of unused areas or protected buildings as HB in the city centre, which represent for the city unexpressed opportunities and often decay spaces, is the necessary preliminary activity for the identification of precise regeneration strategies.

In particular, the 2014 regional legislation introduces the opportunity to identify specific areas to be regenerated as potential beneficiary of specific recovery and transformation of degraded areas incentives by Regione Lombardia. In order to achieve this goal, it is necessary to identify the elements for the definition of regeneration policies concerning the old town built heritage.

To define decay situations, also by verifying the citizens perception of degradation, with the aim of identifying the existing building heritage areas which require interdependent regeneration actions, in relation to the type of degradation in building, urban, socio-economic and environmental terms .

Mantova old town presents about 500 protected buildings (among 4,000 buildings), as assets of historical and monumental interest, all protected by landscape interest constraints and included in the UNESCO area.

With reference to the theme of urban regeneration presented in the introduction, the significant data to be collected and monitored are linked to the possibility of transformation and reuse of private and public buildings included in the old town. The data will allow a more detailed analysis of current and permitted uses in relation to the building typologies, to the conservation status of the asset that insist on the asset itself as well as to the verification of area vocations as a pole of attraction (both in terms of services and cultural and tourist attractions).

The identification of the areas subjected to regeneration on the basis of decay conditions definitions at different levels and of inhabitants decay perception, will allow to identify different types of homogeneous areas in terms of architectural, functional, of proprietary and legal structure. The goal is the definition of regeneration policies and possible processes to

provide facilities for the recovery, reuse and renewal of existing city and building heritage.

Therefore the monitoring plan allows to observe the HBA conditions evolution in relation to the regeneration policies adopted and to regularly modify the policies as regards to the that-time situation evolution.

MONITORING
PROCESS: LOCAL
PLAYERS

TOPIC	DATA OWNER	DATA COLLECTOR	MONITORING'S BENEFICIARIES
Land-use plan	Local government	Responsible municipal department	Community
Cadastral map	Cadastral Agency	Responsible Cadastral Agency	Community
property list	Cadastral Agency	Responsible Cadastral Agency	Community
N. visits (museums) N. permanence day N. accommodation facilities	Province Government	Responsible municipal department	Community
N. of events	Local government	Responsible municipal department	Community
Inhabitants numbers, Age/ nationality/ qualification	Local government	Responsible municipal department	community
Street/ square/ parks maintenance costs	Local government	Responsible municipal department	Community
Degree of buildings conservation	Local government	Responsible municipal department External expert-GIS specialist/ spatial planner	Community
Building type	Local government	Responsible municipal department External expert-GIS specialist/ spatial planner	Community
Current use of the grand floor and prevalent use of the buildings	Local government	Responsible municipal department External expert-GIS specialist/ spatial planner	Community
Decay areas	Local government	Responsible municipal department External expert-GIS specialist/ spatial planner	Community

MONITORING
PROCESS: LOCAL
PRIORITIES



MONITORING
PROCESS:
EFFECTIVE
METHODS

TOPIC	DESK SOURCES	MEASURING METHODS	MONITORING'S SCALE	MONITORING'S PERIODICITY
Land-use plan		Land-use plan	Buildings	Available at any time
Cadastral map		cadastral register	Buildings	Available at any time
property list		cadastral register	Buildings	Available at any time
N. visits (museums) N. permanence day N. accommodation facilities		Touristic statistics	Area	Available every year
N. of events		Touristic statistics	Area	Available every month
Inhabitants numbers, Age/ nationality/ qualification		population register	Area	Available at any time
Street/ square/ parks maintenance costs	Municipal budget		Area	Available every year
Degree of buildings conservation		Survey - descriptive information	Buildings	2018 (depends on public procurement)
Building type		Survey - descriptive information	Buildings	2018 (depends on public procurement)
Current use of the grand floor and prevalent use of the buildings	Local government	Survey - descriptive information	Buildings	2018 (depends on public procurement)
Decay areas	Local government	Survey - descriptive information	Area	2018 (depends on public procurement)



1.2 POPRAD - SLOVAKIA (PP2/PP7)

TITLE	STATE OF THE ART AND MONITORING SYSTEM REQUIREMENTS FOR RISK MANAGEMENT, REUSE, ENERGY PERFORMANCES
FINAL DELIVERABLE	D.T 2.2.3 - Bilingual guide-lines for the local development of a Monitoring Plan for the HBA
AUTHORS (Organization/s)	PP2/PP7

INTRODUCTION

The City of Poprad is a project partner and pilot area for the monitoring tools. With the support of SPECTRA Poprad will test a WEB-GIS platform, through an implementation on a specific site of the city and topic (energy efficiency).

One of the main objectives in the development strategy of the city is the energy efficient city at the level of urban scale and selected public buildings.

Currently the energy efficiency is one of the biggest challenges in historic built areas (HBA). The energy efficiency can improve many factors in HBA including a sustainability, resilience and economy.

The selection of appropriate measures must be based on a relevant monitoring and assessment in a selected area. The municipality selected two HBAs for this project: 1. Spišská Sobota and 2. Juh III neighbourhood. The main reason are to identify the main features that cause overheating in the urban scale and define correct measures. Subsequently there is need to monitor the effectiveness of the measures and propose corrections.

We expect that the measures will effect also the building energy consumption (for cooling or heating), so the following measures would include building techniques and technological improvements

Within DT221 were defined an energy efficiency and urban heat islands as main topics for a monitoring process. These topics are most interesting for the energy efficient city that is one of the objective of local development strategy.

There is a wide range of indicators relevant for these topics including some data about use and building properties, used materials, energy consumption, greenery, microclimate, etc.

Overheating is dangerous for most vulnerable parts of the population - young children and older people. We chose the residential areas with its inner courts and public space (as well as the public buildings) that are the typical urban features where we can monitor the heat islands and where are these groups of people present.

Expectations about the monitoring of selected topics includes:

Analysing of the heat map, identifying of heat islands and features causing overheating

Analysing of the energy efficiency of selected buildings and relation between exterior and interior heat conditions

These analyses will help to define common measures for urban renovation and to define priorities and effective methods for energy-ineffective public buildings.

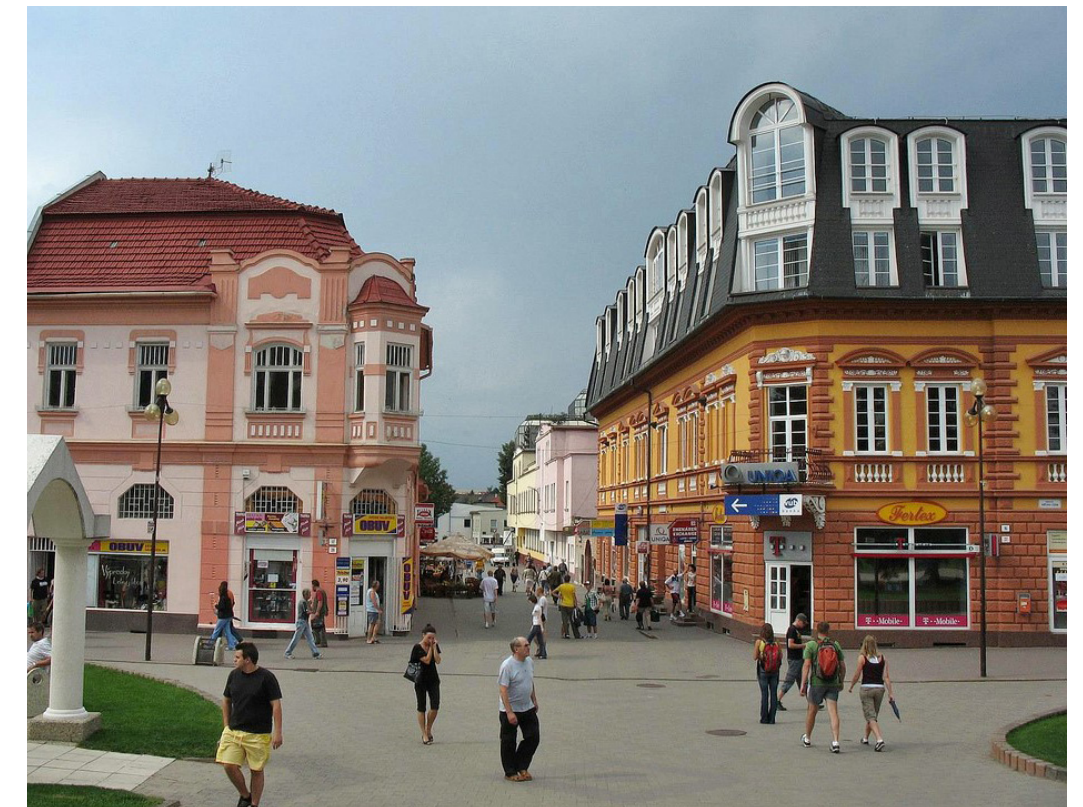
TOPIC	DATA OWNER	DATA COLLECTOR	MONITORING'S BENEFICIARIES
Basic data about use	Municipality, Cadastral office	External expert	There are basic data; from them it's possible to start specific monitoring activities
Building condition data	N/A	Responsible municipal department	There are basic data; from them it's possible to start specific monitoring activities
Energy efficiency	Local energy agency, building owners	Responsible municipal authority	Owners, inhabitants, entrepreneurs in HBAs
HUI	N/A	External expert	Owners, inhabitants, entrepreneurs in HBAs

MONITORING PROCESS: LOCAL PRIORITIES

MONITORING PROCESS: EFFECTIVE METHODS

TOPIC	DESK SOURCES	MEASURING METHODS	MONITORING'S SCALE	MONITORING'S PERIODICITY
Basic data about use	Land-Use plan, cadastral data, population register,	Main: Desk research, GIS processing	Small/medium (building's blocks)	Ad hoc
Building condition data	Cadastral data, some geometric data, some historic records	Main: Survey based on site visit (forms/standards), GIS processing	Large (buildings)	Yearly
Energy efficiency	Energy consumption according to local energy agency	Main: statistical and technical measurements	Large (buildings)	Yearly
UHI	Greenery index according to Land-use plan	Main: Remote sensing, GIS processing	Medium/ Large (Building blocks/Objects)	After any change of the plan in monitored areas

MONITORING PROCESS: LOCAL PLAYERS





1.3 KARLOVAC - CROATIA (PP3/PP10)

TITLE	STATE OF THE ART AND MONITORING SYSTEM REQUIREMENTS FOR RISK MANAGEMENT, REUSE, ENERGY PERFORMANCES
FINAL DELIVERABLE	D.T 2.2.3 - Bilingual guide-lines for the local development of a Monitoring Plan for the HBA
AUTHORS (Organization/s)	Srećko Vrčec (PP10)

INTRODUCTION

With the rapid expansion of the City of Karlovac, especially with construction of New Center, since 1960s, stagnation and devastation of urban tissue of City Star began, the most pronounced in its eastern part, known as the “Chinese Quarter”. Also, unfortunately, during the Homeland War (1991- 1995), shelling and bombing has severely damaged over a hundred objects in protected entity of the City Star and also those ones included in the List of monuments of national significance (eg Church of the Holy Trinity with the Franciscan Monastery, Church St. Nicholas, City Museum, City Hall building and so on.). All these reasons have led to the fact that the buildings are in very poor condition and need to be renovated.

The buildings in the HBA were constructed mostly with masonry load-bearing walls made by bricks, stones and mix - bricks and stones, slabs were made by timber, vaults were made by bricks and roofs were made with timber structure and covered by roofing tiles. Streets and squares were mostly paved by stones (granite cubes, stone slabs).

Also, City of Karlovac has adopted in 2017 a document called Urban plan “ZVIJEZDA“ that is a starting point in determination of current state of HBA. Therefore, there is a real need to monitor the implementation of this document, especially considering the complexity of the need to involve different stakeholders in the implementation process.

Intention is to apply and use available, preferably free IT tools based on BIM (Building Information Modeling) technology that will be able to track default attributes on concrete buildings on a web free accessible platform. Goal of the implemented IT tool is to assist in making decisions when using and maintaining buildings and for future investment projects in the City of Karlovac. Developed IT tool should provide an overview of 3D BIM models and databases that will be integrated into the existing GIS platform of the City of Karlovac. Pilot Building for testing IT tools will be the City Hall building (Picture 1). Implementation of the IT tool will be carried out in three steps:



Pilot building - The City Hall building, Banjavciceva 9, City of Karlovac

1. Development of the BIM model

This information model on building structural components and used materials should serve as:

- A. Energy model - an information model that has the physical properties of the building envelope and its boundary conditions. So, the model should provide insight into the existing energy status of the building.
- B. Architectural model - this model must provide information about condition of construction components of the building such as - condition of the roof construction / cover of the building, outer and inner appearance and condition of the envelope - walls, floors, ceilings (consider the possibility of assigning photos), materials used, construction style and period, number of floors and height, volume, gross and net used surfaces.

MONITORING PROCESS: LOCAL PRIORITIES

2. Creating a database

It is necessary to create a central database that is permanently present in the COBie (Construction Operations Building Information Exchange) environment, where all relevant stakeholders can send information or where they can be available. Created database must be used for data collection throughout the whole building life cycle.

The table must be structured in such a way as to allow multiple buildings to be entered. At this stage, it is necessary to define the structure and key elements of the COBie data model and what information should be placed in the BIM model.

3. Import BIM data model to web platform

In the third step, it is necessary to link the 3D BIM model with the relevant database and web GIS platform that will be available to all relevant stakeholders in the project implementation process, from the conceptual solution design to the building management and use of the building.

The associated model on the GIS platform must provide basic information (attributes) about the building such as building purpose, property data, legality, degree of conservation protection, gross and net area, volume, floor number, energy class (mark in color) and energy and water consumption data, period and style of construction, year of reconstruction if any, condition of building components (roof, facade, carpentry, construction), type of building material used to build it and planned reconstruction measures with cost estimates, future use and photographs.

Information on the web GIS platform must be able to filter according to given criteria and consequently create a visual map for the default variable (for example, mark red all buildings that have roofs in very poor condition or buildings that have problems with facade, etc.).

It is necessary to examine the ability to apply the same database to the BIM model and to the Web GIS platform.

Before making a web GIS platform, it is necessary to agree with the City of Karlovac the exact number and type of data / variables that will be integrated into the database and which will need to be collected.

TOPIC	DATA OWNER	DATA COLLECTOR	MONITORING'S BENEFICIARIES
Energy audit report, Energy certificate - composition of building components, energy class	Or private or local and regional government bodies	REGEA	Composition of structural building elements before and after reconstruction and their U-value
EMIS - energy and water consumption before and after reconstruction	Ministry of construction and physical planning	REGEA, available on web	Comparing energy and water consumption before and after reconstruction
Building project documentation (current and future) - main design, drawings, sketches, archival material	Or private or local and regional government bodies Conservation office Archives	REGEA	Basic data on condition of the building components, surface, condition, construction interior purpose building
Handbook on introducing energy efficiency measures on cultural heritage site - input data for reconstruction	REGEA	REGEA	Guidelines for reconstruction - materials that can be used for reconstruction, etc.
GIS - City of Karlovac	City of Karlovac	City of Karlovac	Improving existing GIS

MONITORING
PROCESS: LOCAL
PLAYERS

MONITORING
PROCESS:
EFFECTIVE
METHODS

TOPIC	DESK SOURCES	MEASURING METHODS	MONITORING'S SCALE	MONITORING'S PERIODICITY
Energy audit report, Energy certificate - composition of building components, energy class	Energy audit report, Energy certificate	Desk research method As optional measuring methods: - thermovision; - blower door	Detailed on built structures - building details	Ad hoc periodicity - based on needs at any time
EMIS - energy and water consumption before and after reconstruction	Web based information	Desk research method	Detailed on specific buildings	Ad hoc periodicity - based on needs
Building project documentation	Main design, drawings, sketches, archival material (current and future)	Desk research method As optional measuring methods: site visit, different measurements (laser scanning, etc.)	Detailed on specific buildings	Ad hoc periodicity - based on needs Added value: data can be visualized on the GIS platform to get a wider picture





1. Renaissance castle in Vaja (17th century)
2. Vaja Castle inside (17th century)
3. Medieval reformed church in Csengersima (13th century)

1.4 SZALBOCS REGION - HUNGARY (PP4/PP11)

TITLE	STATE OF THE ART AND MONITORING SYSTEM REQUIREMENTS FOR RISK MANAGEMENT, REUSE, ENERGY PERFORMANCES
FINAL DELIVERABLE	D.T 2.2.3 - Bilingual guide-lines for the local development of a Monitoring Plan for the HBA
AUTHORS (Organization/s)	PP4

INTRODUCTION

The Historic Built Area is located in Szabolcs-Szatmár-Bereg county, north-eastern part of Hungary. The densely populated region covers 6 towns and 38 villages. Due to the historical and cultural development of the region, four elements of historical building are stated as part of HBA. The most important local features of the HBA are the followings:

There are several castles and mansions from the 16th and 19th centuries in the HBA. The main architectural styles of these buildings are renaissance, baroque and classicist.

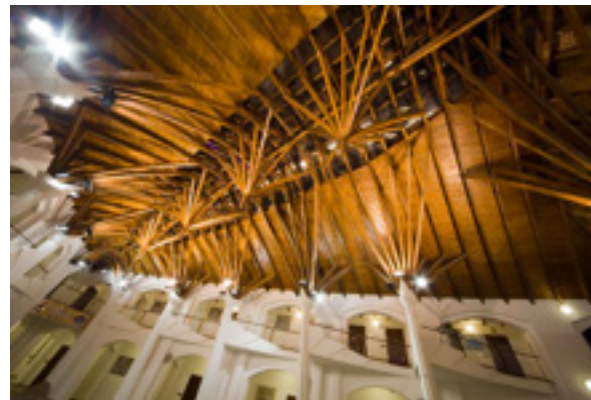
Szatmár region is of the richest place of medieval churches in Hungary. Typical characters of these churches are their relatively small size, the tree bell towers built next to the churches, their carved pulpit and medieval frescoes.

The castles and medieval churches (mostly Reformed churches) determined the landscape of the settlements and established the future urban planning processes most of the settlements in the HBA.

Folk farmhouses are proof of utilization of building materials finding in environment. The main characters of these three rooms' houses are rammed earth floor, low masonry, reed covering, a long veranda and a big granary at the end of the yard.

The Hungarian organic architectural style, founded by Imre Makovecz is

one of the most determinant styles in the centre of Csenger.
The preservation of built heritage needs a sustainable model. The project focuses on improving the management of HBAs, combining the maintenance of historic heritage with its preservation and development in a sustainable way. Monitoring activity is a key component of management. The monitoring can be explained as the continuous controlling process over selected historic structures in HBA. The Monitoring Plan specifies the main topics, the connected indicators and the responsibility of the monitoring activities to follow up the planned activities, to reveal the arising problems during the implementation period and to find the adequate answers to solve these problems.



4. Folk farm house in Pátyod

5. Imre Makovecz Primary School in Csenger

Monitoring activities of the HBA focuses on three main topics (basic data, building condition data and sustainability components data). Basic data and building condition data include information about size, building materials, age, condition of exterior and interior, usage, ownership, population, legal protection etc. of buildings. These data are basic data to specify further monitoring activities. Data linked to sustainability components are other important group of indicators to control the transformation of the selected historic structures and to provide the sustainability of the planned activities. In terms of this document, monitoring of sustainability components has priority.

MONITORING
PROCESS: LOCAL
PRIORITIES

The three main groups of indicators linked to sustainability components and their role in the monitoring process are the followings:

Monitoring environmental features such as energy efficiency, waste and water, pollution, mobility is significant to measure environmental sustainability. It contributes to implement energy sufficient and environmental friendly investments and to decline the negative effect of harmful environmental components like flood, inland water, air pollution etc.

Monitoring social components for example existence and quality of public services, cultural and leisure facilities, level of local identity, level of gentrification, situation of accessibility and security are important to measure social sustainability of the investments in the HBA. It can help to carry out inclusive, socially useful activities in the HBA.

Monitoring economic aspects such as tourism impact, maintenance and transformation costs are important to gain an insight into the economic impact of the planned activities in the HBA. It provides to realize financially sustainable activities in long term and to measure the positive and negative effect of tourism in the HBA.



6. Jékey Castle in Géberjén (19th century)

7. Folk farm house inside - 'clear room'

MONITORING PROCESS: LOCAL PLAYERS

TOPIC		DATA OWNER	DATA COLLECTOR	MONITORING'S BENEFICIARIES
Built spaces and objects	Basic data	Private/public owners of the property	Architect, technician	Private/public owners of the property
	Building condition data	Private/public owners of the property		Private/public owners of the property
Environmental features	Energy efficiency	Private/public owners of the property	Technician, external professional	Operator, private/public owners of the property
	Waste and water	Local water authority, public utility agency, emergency management agency, municipal offices	Hydrographer, external professional	Residents, private/public owners of the property
	Pollution	Environmental protection agency, municipal offices	Environmental expert	residentR
	Mobility	Municipal offices	External professional	Residents, tourists
Social components	Services and facilities	Municipal offices, private associations	External professional	Residents
	Cultural life and leisure facilities	Municipal offices, private associations	External professional	Residents
	Identity perception	Municipal offices, non-governmental organizations	External professional	Residents
	Gentrification vs. mixité	Municipal offices, non-governmental organizations	External professional	Residents
	Accessibility	Private/public owners of the property, municipal offices, non-governmental organizations	External professional	Disabled visitors
	Security	Police, municipal offices	External professional	Residents
Economic aspects	Tourism impact	Private/public owners of the property, municipal offices	External professional	Residents, tourists, private/public owners of the property
	Maintenance costs	Private/public owners of the property	Business consultant, external professional	Private/public owners of the property
	Transformation costs	Private/public owners of the property	Architect, technician	Private/public owners of the property

MONITORING PROCESS: EFFECTIVE METHODS

TOPIC		DESK SOURCES	MEASURING METHODS	MONITORING'S SCALE	MONITORING'S PERIODICITY
Built spaces and objects	Basic data	Architectural and design plans	Technical measurements	Large, detailed -on built - structures	Before and after intervention
	Building condition data	Currently available historical records, photographs	Remote sensing, technical measurements	Large, detailed -on built - structures	Before and after intervention
Environmental features	Energy efficiency	Currently available energy consumption data	Remote sensing, technical measurements	Small, medium	Before and after intervention
	Waste and water	Currently available statistical data, historical records, data from public utility companies	Vis major cases and cost, waste management data on city level	Small, medium	Yearly
	Pollution	Data from environmental protection agency	Technical measurements (air pollution)	Small, medium	Yearly
	Mobility	Data from public utility companies	Statistical measurements (traffic counting)	Small, medium	Link to the local strategy and development programs (in every 7 years)
Social components	Services and facilities	Currently available statistical data	Questionnaire survey	Small, medium	Link to the local strategy and development programs (in every 7 years)
	Cultural life and leisure facilities	Currently available data (historical records, photographs)	Questionnaire survey	Small, medium	Link to the local strategy and development programs (in every 7 years)
	Identity perception	Historical records	Mind mapping	small, medium	Link to the local strategy and development programs (in every 7 years)
	Gentrification vs. mixité	Currently available statistical data	Questionnaire survey	Small, medium	Link to the local strategy and development programs (in every 7 years)
	Accessibility	Currently available statistical data	Questionnaire survey	Large, detailed - on built - structures	Link to the local strategy and development programs (in every 7 years)
	Security	Currently available statistical data	Questionnaire survey	Small, medium	Link to the local strategy and development programs (in every 7 years)
Economic aspects	Tourism impact	Currently available statistical data	Statistical measurements, questionnaire survey	Small	Yearly
	Maintenance costs	Currently available statistical data	Financial and technical measurements	Large, detailed - on built - structures	Yearly
	Transformation costs	Currently available statistical data	Financial and technical measurements	Large, detailed - on built - structures	Before (estimated budget) and after intervention



1.5 IDRIJA REGION - SLOVENIA (PP5/PP8)

TITLE	STATE OF THE ART AND MONITORING SYSTEM REQUIREMENTS FOR RISK MANAGEMENT, REUSE, ENERGY PERFORMANCES
FINAL DELIVERABLE	D.T 2.2.3 - Bilingual guide-lines for the local development of a Monitoring Plan for the HBA
AUTHORS (Organization/s)	Franc Zakrajšek, Vlasta Vodeb, Urban planning Institute of the Republic of Slovenia

INTRODUCTION

In Slovenia evaluation of HBA for monitoring was already standardized several years ago. Databases (with georeferenced data) are available online, integrated into several national GIS applications (<http://giskd.situla.org>, <http://evrd.situla.org/>). HBA data with their legal regimes are prepared at local level, within standardized procedure, monitored and regularly maintained. Data are interoperable with databases on buildings, cadastre, public infrastructure, environmental data, ... etc. All those databases coverage whole territory of Slovenia.

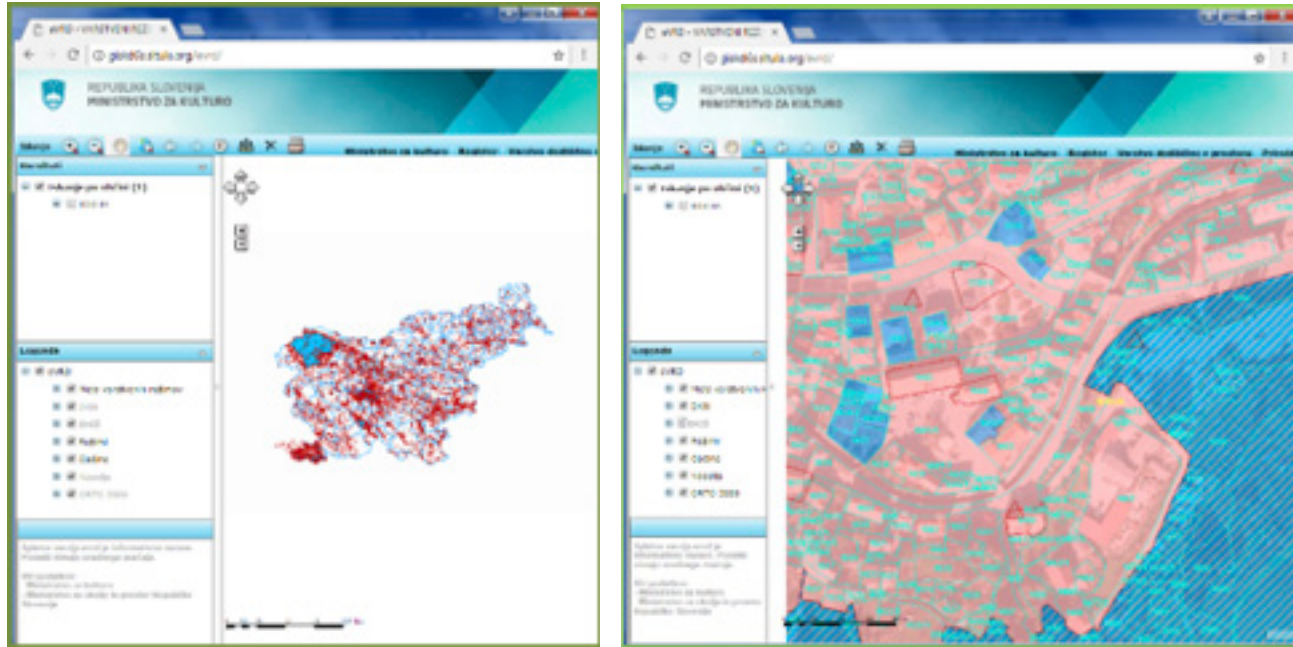
Local communities as Idrija already use those databases for monitoring; preparation of urban/spatial plans, planning infrastructure (e.g., streets, lights, sewage, ...), imposing heritage protection, environmental protection and plans, issuing building permits, real estate management, energy card preparation, population data...

As all those databases includes georeferences and are already available / downloadable in online GIS platforms or easily integrated into local municipalities GIS systems. Pilot area in Idrija (as well as all Slovenian municipalities) is using those data in local GIS.

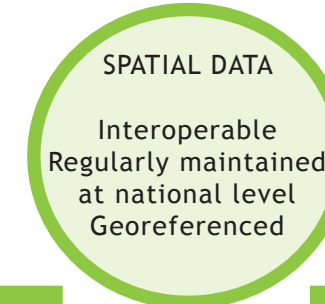
Challenge: integrating “soft data” on visitors, inhabitants needs, perceptions of visitors.

Protection regimes for CH: <http://evd.situla.org>, developed by F.J.Zakrajšek

MONITORING
PROCESS: LOCAL
PRIORITIES



Risk assessment of cultural heritage			
CONDITION	USAGE	RISK	
1. Very Bad Likely collapse of building substances, cause: covering mostly missing, roof is collapsing	1. vacant <input checked="" type="checkbox"/>	1. Extreme risk <input type="checkbox"/>	
	2. partly occupied	2. Serious threats <input type="checkbox"/>	
2. Poor Damage that tends to collapse the building substance, for example decking missing in several places,	3. occupied <input type="checkbox"/>	3. Substantial risk <input type="checkbox"/>	
	1. vacant <input type="checkbox"/>	4. Moderate threat <input checked="" type="checkbox"/>	
	2. partly occupied <input type="checkbox"/>		
3. Fair Solid building substance, poorly maintained, for example window frames are falling apart, drains are clogged, the walls show signs of moisture	3. occupied <input type="checkbox"/>	5. Potential threat (Unit must be observed) <input type="checkbox"/>	
	1. vacant <input type="checkbox"/>	6. No hazard <input type="checkbox"/>	
	2. partly occupied <input checked="" type="checkbox"/>		
4. Good Solid building substance properly maintained	3. occupied <input type="checkbox"/>		
	1. vacant <input type="checkbox"/>		
	2. partly occupied <input type="checkbox"/>		



- CH protection regimes (heritage evaluation data, legal data, spatial planning regimes/plans, ...)
- Digital cadastre of parcels (land use, zones, protection data,...)
- Cadastre of public infrastructure
Plans, restrictions
- House numbers
building data, ownership, real estate (transactions) data, energy efficiency data, population data, tax data,



- Register of cultural heritage
- Register of natural values / heritage
- Cadastre of parcels
- Cadastre of buildings
- Cadastre of real estates
- Cadastre of public infrastructure
Transport, energy infrastructure, communal/waste infrastructure, water/floods, telecommunications,
- Real estate market data
- Population data
Demographic data on house number
- Tax data
- eGovernment
e.g. building permits
- National environmental database
Air, Climate Change, Water, Nature, Noise, Chemicals, Waste, Energy, Radiations, Industry, Environmental Impact Assessment, Soil, Natural and other Disasters, Legislation, etc.
- etc. ...



**MONITORING
PROCESS: LOCAL
PLAYERS**

TOPIC	DATA OWNER	DATA COLLECTOR	MONITORING'S BENEFICIARIES
CH protection regime	Ministry of Culture RS	Ministry of Culture of RS	HBA data
Register of cultural heritage	Ministry of Culture	Ministry of Culture of RS	HBA data
Environmental data	Slovenian Environment Agency	Slovenian Environment Agency	environmental data
Population data	Statistical Office of the Republic of Slovenia	Statistical Office of RS	Statistical, economic, demographic data
Tax data	Ministry of finance of RS	Ministry of finance of RS	Tax data
Cadastre of parcels	The Surveying and Mapping Authority of RS	The Surveying and Mapping Authority of RS	Parcel related data
Cadastre of real estates	The Surveying and Mapping Authority of RS	The Surveying and Mapping Authority of RS	Real estate data
Cadastre of public infrastructure	The Surveying and Mapping Authority of RS	The Surveying and Mapping Authority of RS	Public infrastructure data
Real estate market data	The Surveying and Mapping Authority of RS	The Surveying and Mapping Authority of RS	Transaction and evaluation of market data

**MONITORING
PROCESS:
EFFECTIVE
METHODS**

TOPIC	DESK SOURCES	MEASURING METHODS	MONITORING'S SCALE	MONITORING'S PERIODICITY
Compiling data	Online registers	Surveying	Macro / mezzo / micro	Yearly
Surveying	Field analysis	Surveying	Micro	Yearly



1.6 EMILIA ROMAGNA REGION - ITALY (PP6/PP13)

TITLE	STATE OF THE ART AND MONITORING SYSTEM REQUIREMENTS FOR RISK MANAGEMENT, REUSE, ENERGY PERFORMANCES
FINAL DELIVERABLE	D.T 2.2.3 - Bilingual guide-lines for the local development of a Monitoring Plan for the HBA
AUTHORS (Organization/s)	PP6 Emilia-Romagna Region

INTRODUCTION

On 20th May 2012, at 4:03 am, an earthquake with a local magnitude (ML) of 5.9 on the Richter scale struck the Po Plain. The epicentre was in the province of Modena, between Mirandola and Finale Emilia, while the depth of the hypocentre was estimated at approx. 6.3 km. A large number of aftershocks were recorded the same day, two of which presented a magnitude of above 5.0.

Nine days later, on 29th May 2012 at 9:00 am, another strong 5.8 ML shock hit the Modena plain once again. The quake's epicentre was near Medolla, approximately 10 kilometres west of the main earthquake of 20th May, at a depth of approximately 10.2 km. Numerous aftershocks followed that same day, including two with a magnitude above 5.0.

In all, there were seven earthquakes of a magnitude above 5.0, the last of which occurred on 3rd June 2012 at 9:20 pm.

The analysis of observed damage and effects carried out by the Department of Civil Protection-Seismic and Volcanic Risk (Galli et al., 2012) and by the Italian Institute of Geophysics and Vulcanologia-gruppo QUEST (QUEST Working Group, 2012) Volcanology-QUEST group (QUEST Working Group, 2012) identified effects of VII-VIII on the intensity scale, classifying the largest shocks as very strong and destructive.

This sector of the Po Plain had already been affected by earthquakes of an intensity above VII in 1346, in 1570 and in 1796 (Locati et al., 2011) The most recent seismic crises present strong analogies, in terms of damage and environmental effects observed, with the Ferrara earthquake of 1570.

As regards damage, the seismic sequence resulted in damage above all to large buildings, such as castles and towers, churches, bell towers and industrial sheds, with widespread effects caused by liquefaction.

Some figures:

- 19.000 homeless families
- 16.000 families involved in extended assistance with more than 45.000 people
- 14.000 residential building damaged
- 13.000 companies damaged: industrial warehouses and plants, agricultural companies, stores, offices
- 2.000 public and historical buildings churches included
- 1.041 schools verified : 570 damaged (45.000 pupils involved): 2012/2013 school year started regularly because of the immediate solutions achieved: 234 mln Euro

The reconstruction started immediately after the emergency action. The economic resources necessary in order to intervene on damage repair, local reinforcement or seismic improvement of protected buildings were estimated trough a joint action of the buildings owners and the Cultural Heritage Ministry, in relation to the level of damages suffered.

The Reconstruction program is articulated in two sections:

Public Buildings (23%) and Historical Buildings (77%).

Needed: 1,524 billons euros.

The actors involved in the Program are 125, of which 76 Municipalities and Provinces, 13 religious entities (Dioceses and Parishes), 36 others.

The preparation and approval of projects is long and laborious: the technical solutions proposed, approved and then carried out must

necessarily take into account conflicting aspects. Such as the introduction of new structural elements, necessary for the improvement of the behavior of the building towards earthquakes and the need to respect the original conformation of the building.

Here below some data on the **public reconstruction (FENICE)**:

- Operations: **1.869** for **1.543** mln
- Building sites granted: **1.437** for **1.095** mln
(690 mln PUBLIC FUNDS 405 mln CO-FINANCING)
- Operations in progress: **1.274** for **981** mln
- Building sites in progress: **733**

The city centre reconstruction:

- Reduction of urban
- Prevention, mitigation and reduction of seismic risk
- Urban redevelopment and spatial reorganization



After 6 years from the earthquake the reconstruction of almost all public buildings is financed and the interventions are on-going. Only few interventions on buildings of particular historical interest are still to be programmed due to their complexity.

The quality reconstruction is being completed which returns a building heritage much more safe, energetically efficient and urbanistically rethought in many parts with a system of public space that can host service functions to citizens in conditions better than those before the earthquake.

Now the attention is moving more and more from the completion of the interventions to the restoration of normal living conditions in particular for the historical build area. It is therefore of high interest to monitor how the historical build area after the recovery is starting to revive with its social and economic functions.

The main topics for a monitoring process are therefore related to social and economic features of the reconstruction

Monitoring social components for example the recovery of administrative and social activities that were carried out before the earthquake, existence and quality of public services, cultural and leisure facilities, level of local identity, etc.

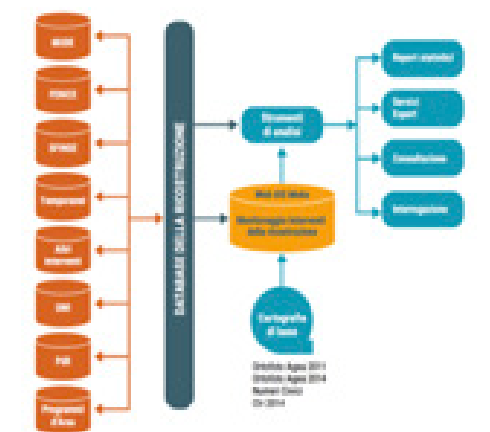
Monitoring economic aspects such as recovery of economic activities that were carried out before the earthquake, tourism impact, etc.



MONITORING PROCESS: LOCAL PRIORITIES

MONITORING PROCESS: LOCAL PLAYERS

TOPIC		DATA OWNER	DATA COLLECTOR	MONITORING'S BENEFICIARIES
Social components	Services and facilities	Municipal offices, private associations	FENICE DATABASE	Public owners of the property
	Cultural life and leisure facilities	Municipal offices, private associations	Public owners of the property	Public owners of the property
	Identity perception	Municipal offices, private associations	Environmental expert	Residents
	Gentrification vs. mixité	Municipal offices, private associations	Environmental expert	Residents
	Accessibility	Private/public owners of the property, municipal offices, non- governmental organizations	Environmental expert	Residents
	Security	Police, municipal offices	Environmental expert	Residents
Economic aspects	Economic Activities	Municipal offices	Statistical data (ISTAT)	City Council
	Tourism impact	Private/public owners of the property, municipal offices	Statistical data (ISTAT)	City Council





MONITORING PROCESS: EFFECTIVE METHODS

TOPIC		DESK SOURCE	MEASURING METHODS	MONITORING'S SCALE	MONITORING'S PERIODICITY
Social components	Services and facilities	Currently available statistical data currently available data (historical records, photographs)	Database and Statistical Data queries	Local	Yearly
	Cultural life and leisure facilities	Historical records	Database and Statistical Data queries	Local	Yearly
	Identity perception	Currently available statistical data	Database and Statistical Data queries	Local	Yearly
	Gentrification vs. mixité	Currently available statistical data	Database and Statistical Data queries	Local	Yearly
	Accessibility	Currently available statistical data	Database and Statistical Data queries	Local	Yearly
	Security	Currently available statistical data	Database and Statistical Data queries	Local	Yearly
Economic aspects	Economic Activities	Currently available statistical data	Database and Statistical Data queries	Local	Yearly
	Tourism impact	Currently available statistical data	Database and Statistical Data queries	Local	Yearly



1.7 BAD RADKESBURG - AUSTRIA (PP9)

Title	STATE OF THE ART AND MONITORING SYSTEM REQUIREMENTS FOR RISK MANAGEMENT, REUSE, ENERGY PERFORMANCES
FINAL Deliverable	D.T 2.2.3 - Bilingual guide-lines for the local development of a Monitoring Plan for the HBA
Authors (organisation/s)	Prof. Dr. Ulrike Pröbstl-Haider Dipl.-Ing. (FH) Oliver Schmid-Selig

INTRODUCTION

HBA is located in the center of Bad Radkersburg. In 1978, the town was awarded with Europe's gold medal for preservation of historical monuments. The old city was protected by water and fortification from all sides, now being a green belt. In the center of Bad Radkersburg, all buildings are listed in national heritage list. In the basement there are mostly shops. The upper floors are used, except public buildings, banks and so on, as flats. The city provides the center with a district heating system, but they are not allowed to give the owners of protected buildings a better price. Beside the hot thermal water the city profits from bioenergy based on wood chips since 2010. This allows to deliver environmental friendly heating to private owners and enterprises.

The "landscape" of the roofs is protected by local, governmental law. If somebody wants to buy one of these houses, he or she has to cope with buying a large building, but facing significant restrictions concerning its entire use.

The city center is intensively used by tourists but also by the local population. There is still a number of shops in the center and working opportunities. The relevance of tourism has increased since some old buildings have been changed into guest houses.

The city center is also the cultural heart of the city with various markets during the year and festivals using the center actively. The accessibility

is good; limitation exist due to few parking opportunities in the center. However new opportunities for parking have been developed nearby. The center is perceived as very valuable for the city, tourism and for the quality of life for its inhabitants.

Concerning a tailor-made monitoring system looking at risk management, reuse and energy performance it is therefore important to look at the use level and the reuse of buildings on one hand and to consider possible risks by flooding.

Within our analyses of the entire HBA we checked different aspect for monitoring such as waste water, pollution, mobility, gentrification and natural risks. Against this background we believe that for the future of the HBA in the inner city the monitoring of two aspects is important:

1. The flood risk and the ground water level in the green belt around the city.
2. For further development is crucial to monitor the overall development of used and unused spaces.

In the following these two aspects are explained:

The flood risk was always influencing the development of the city, and especially the HBA. However, in the last decades a flood protection concept has been developed and improved only recently. In the last two years, starting in 2016 the flood protection dam has been increased over a length of 9 kilometers and has been improved for a one-hundred-year flood. This improvement may also cover new challenges due to climate change. However, for the stability of the historic buildings also the ground water level is crucial and should be integrated into a monitoring system. Furthermore, it is a challenging task to provide local owners with support to enhance the useable space, to reduce the overall costs per square meter of their respective buildings. Enhance available data in this respect will have an influence on the willingness to renovate old building and to maintain them, as well as to calculate maintenance and transformation costs.

MONITORING
PROCESS: LOCAL
PLAYERS

TOPIC	DATA OWNER	DATA COLLECTOR	MONITORING'S BENEFICIARIES
Flood risk Ground water level	Local Administration for Management Water	Local Administration for Water Management	All owners in the HBA
Used and unused space in the HBA	Not yet monitored	Project Partner (University)	All owners in the HBA and all persons interested in renting or buying and renovating a historic building

MONITORING
PROCESS: LOCAL
PRIORITIES

MONITORING
PROCESS:
EFFECTIVE
METHODS

TOPIC	DESK SOURCES	MEASURING METHODS	MONITORING'S SCALE	MONITORING'S PERIODICITY
Flood risk Ground water level	Water level at certain points along the river, Groundwater only general information available	Measuring is clear (Pegelstände), long term measurement over decades, Groundwater measurement montly available	http://ehyd.gv.at/?g_card=pegelaktuell# in meter provided by the ministry of sustainability and tourism. The monitoring area is close to the HBA area	Monthly since 1988
Used and unused space in the HBA	No data available	No official methological approach defined	Used and unused building are currently considered in planning processes, an enhanced approach with figures based on enclosed room in m3 including the roofs should be applied	Currently not applied



1.8 MUKULOV - CZECH REPUBLIC (PP12)

TITLE	STATE OF THE ART AND MONITORING SYSTEM REQUIREMENTS FOR RISK MANAGEMENT, REUSE, ENERGY PERFORMANCES
FINAL DELIVERABLE	D.T 2.2.3 - Bilingual guide-lines for the local development of a Monitoring Plan for the HBA
AUTHORS (Organization/s)	IURS, z.s. CR

INTRODUCTION

Local features of Mikulov HBA

- famous for its history embodied in architectural monuments constricted in relatively small core area and for rich viticulture tradition
- the Pálava Protected Landscape Area begins in Mikulov (CHKO Pálava), and so does the Lednice-Valtice Cultural Landscape (UNESCO Heritadge).
- MPR Mikulov regeneration has been conceptually supported by the city and other engaged institutions, HBA management faces a number of problems affecting the regeneration process that can be summarized as follows:
 - new Local plan is not approved, MPR regulatory plan is missing (realization in 2018)
 - basic rescue works and the recovery of outer shells predominate as a characteristic feature of regeneration process
 - a technical state of some objects can affect permanent loss of historical values, high financial demands on MPR regeneration and lack of resources for their maintenance, problematic planning of repairs

- unused buildings, long-lasting gap sites, unsettled state of some public areas
- increasing traffic load
- obsolete state of engineering networks

Reasons of a needs of a monitoring plan

The regeneration program should be understood as an open project that, based on newly discovered facts, will gradually modify, supplement and develop in order to continuously reflect the current situation and needs of the MPR Mikulov. Since it's hard to quantify the actual costs expended for regeneration - a monitoring plan is needed.

Supporting facts and expected results

- updated MPR Mikulov regeneration program follows in previous document (2005) and its outputs are continuously documented and analysed
- actual update cycle of the regeneration program was set to 5 years
- monitoring of the regeneration process as a base for the MPR Mikulov strategic process proposal
- number of newly recommended projects
- total volume of finances invested to the assembly of historical monuments would be specified

The MPR Mikulov management (representatives) monitors and prioritises hard indicators, such as: state of the buildings, transport solutions and the availability of objectives and services within HBA including their cost-effectiveness. Monitoring of savings by introducing energy-saving measures or monitoring of insulation or greenery indexes are not yet widespread, and experience of other project partners should be used to assess the relevance of these indicators for HBA Mikulov.

*1= lowest, 9 = highest

MONITORING PROCESS: LOCAL PRIORITIES MATRIX

PRIORITY	REASONS OF SELECTION	EXPECTATIONS	RELEVANCE FOR HBA MIKULOV*
Building condition data	Classification of the technical state of individual monuments (assessing the state of cultural heritage) ranking system 1-5	- necessary for prioritization (compositional analysis) - it's possible to define financial needs and appropriate sources	9
Ownership structure (ongoing survey)	Basic information for documentation (just to monitor the state)		6
Maintenance costs	Necessary for allocation appropriate amount of money	- it's possible to define financial needs and appropriate sources	6
Services and facilities	Lacking equipment with a tiny architecture and appropriate outdoor furnishings	- public facility solution in relation to historical monuments	7
Mobility	Traffic intensity monitoring	- parking solution (park & ride for visitors) - definition of pedestrian zone - more appropriate solution for an existing one-way system	8
UHI	To improve the life quality of the population	- design of vegetation to supplement - recommendations for the Mikulov HBA regulation plan	3
Energy efficiency	Conflicts between energy efficiency and conservation hinder regeneration process environmental issues could be balanced with aesthetic and cultural-historic value	- to monitor % recycling of construction waste, % of water and energy saving, % primary raw materials saving - focus on smart public infrastructure (smart city concept)	4
Tourism impact	Tourism support is one of the city's main priorities	- it's possible to define financial needs and appropriate sources - setting HBA's tourism limits - to increase the image of the city	7
Accessibility	Problematic HBA's barrier-free solution (historical territorial layout - street network)	- monitoring of suitable HBA places for barrier-free accessibility	8

TOPIC	DATA OWNER	DATA COLLECTOR	MONITORING'S BENEFICIARIES
Built spaces and objects conditions	Municipality (building dept.) National offices	Municipality (building dept.)	Municipality, owners
Environmental features	Energy Agency (Company)	UHI - municipality (zoning plan) Mobility - Spatial Analytical Materials Energy Efficiency - private subject	Municipality (strategic and conceptual documents acquirer), owners, residents
Social components	Municipality, private associations	services and facilities - private subject	Municipality, visitors, residents
Economic aspects	Municipality Regional / National bodies	Maintenance Costs - Municipality Tourist Impact - (Micro)Regional Authority	Municipality, owners

MONITOROVACÍ PROCES: ROLE MÍSTNÍCH HRÁČŮ

MONITORING PROCESS: EFFECTIVE METHODS

TOPIC	DESK SOURCES	MEASURING METHODS	MONITORING'S SCALE	MONITORING'S PERIODICITY
Built spaces and objects conditions	Currently available data, historical records, archaeological records, photography, geometric plans	Desk research method; site visit	Medium, large	Continuously - 1y
Environment al features	Local energy company data; zoning plan	Desk research method: statistical and technical characteristic	Medium, large	EE - continuously - 1y strict periodicity - recommended cycle for updating the regeneration program is 5y period
Social components	Zoning plan, regulatory plan	Desk research method; crowdsourcing	Medium	Strict periodicity - recommended cycle for updating the regeneration program is 5y period
Economic aspects	Visitors' survey (tourism impact)	Desk research method; forms or standard checklists	Medium	Continuously - 1y

strict periodicity - recommended cycle for updating the regeneration program (MPR Mikulov) is 5y period



CHAPTER 2

ORIGINAL
LANGUAGE VERSION





1.1 MANTOVA - ITALY (PP1)

TITOLO	STATO DELL'ARTE E REQUISITI DEL SISTEMA DI MONITORAGGIO PER LA GESTIONE DEL RISCHIO, IL RIUSO E LE PERFORMANCE ENERGETICHE
DELIVERABLE FINALE	D.T 2.2.3 - Linee guida bilingue per lo sviluppo locale di un Piano di Monitoraggio per il Centro Storico
AUTORI (Organizzazione/i)	PP1

INTRODUZIONE

Tra i temi di rilevante importanza per una gestione sostenibile del centro storico, oltre al tema innovativo dell'aumento dell'efficienza energetica del patrimonio edilizio esistente che oggi subisce ancora in Italia una situazione di conflitto tra la valorizzazione dei beni storico culturali e le tecnologie di efficientamento energetico, il tema particolarmente rilevante è la necessità di contrasto a fenomeni di desertificazione dei centri storici. Così anche per il centro di Mantova, si sta consolidando un trend di decentramento e conseguente desertificazione del centro storico in ragione di una più semplice localizzazione in aree della città con meno vincoli di tutela e quindi una semplificazione burocratica delle procedure di insediamento sia in termini abitativi che in termini di aziende.

In tale contesto elemento essenziale per la gestione sostenibile del bene storico è il mantenimento degli usi esistenti e la semplificazione dell'insediamento di nuovi residenti nonché di nuove attività e servizi, compatibili con i caratteri di tutela del patrimonio culturale della città. Il tema pertanto su cui si concentra l'azione Pilota per Mantova è il concetto di Rigenerazione Urbana, introdotto sia dalla proposta di Legge nazionale di gestione del territorio, che dalla L.R.31/2014 e declinato come l'insieme coordinato di interventi urbanistico-edilizi e di iniziative sociali che includono, anche avvalendosi di misure di ristrutturazione urbanistica, la riqualificazione dell'ambiente costruito,

la riorganizzazione dell'assetto urbano attraverso la realizzazione di attrezzature e infrastrutture, spazi verdi e servizi, il recupero o il potenziamento di quelli esistenti, il risanamento del costruito mediante la previsione di infrastrutture ecologiche finalizzate all'incremento della biodiversità nell'ambiente urbano.

L'analisi delle criticità e la loro rilettura, orientando il ripensamento di aree o edifici tutelati come HB nel Centro Storico non utilizzati, che rappresentano per la città opportunità inespresse e spesso luoghi di degrado, è l'attività necessaria preliminare per l'individuazione di precise strategie di rigenerazione. In particolare la normativa regionale del 2014 introduce l'opportunità di individuare specifici ambiti da rigenerare che potrebbero essere oggetto di eventuali incentivi da parte di Regione Lombardia, volti al recupero e alla trasformazione degli ambiti degradati. Al fine di raggiungere tale obiettivo è necessaria l'individuazione degli elementi necessari per la definizione di politiche di Rigenerazione che riguardano il patrimonio costruito del centro storico.

Il centro storico di Mantova vede circa 500 edifici tutelati quali beni di interesse storico monumentale su circa 4.000 edifici, tutti tutelati da vincoli di interesse paesaggistico come bellezza d'insieme e ricompresi nell'area UNESCO. In riferimento al tema della Rigenerazione urbana espresso nell'introduzione, i dati significativi da raccogliere e monitorare sono legati alla possibilità di trasformazione e riuso degli edifici privati e pubblici ricompresi nel centro storico, consentendo una più dettagliata analisi degli usi attuali e degli usi consentiti in relazione alle tipologie edilizie e in relazione allo stato conservazione dei beni che insistono nel bene stesso, nonché la verifica delle vocazioni dell'area quale polo di attrazione in termini sia di presenza di servizi che di attrazioni culturali e turistiche.

Il lavoro di individuazione delle aree da assoggettare a rigenerazione sulla scorta della definizione di condizioni di "degrado" a differenti livelli, misurando anche il degrado percepito dagli abitanti della città, consentirà di individuare differenti tipologie di ambiti omogenei in termini di caratteristiche architettoniche, funzionali, di assetto proprietario e giuridico, tali da consentire la definizione di politiche e percorsi possibili di rigenerazione, con l'obiettivo di prevedere agevolazioni volte a favorire il recupero, il riuso e rinnovamento della città esistente e del suo patrimonio edilizio.

Pertanto da un lato il piano di monitoraggio consente di monitorare l'evolversi delle condizioni del HBA in relazione alle politiche adottate di rigenerazione, dall'altro consente di modificare continuamente le politiche in relazione all'evolversi dello stato di fatto.

PIANO DI
MONITORAGGIO:
ATTORI LOCALI

ARGOMENTO	PROPRIETARI DEL DATO	CHI RACCOGLIE IL DATO	BENEFICIARI DEL MONITORAGGIO
Uso del suolo	Governo locale	Ufficio comunale di competenza	Comunità
Mappa catastale	Catasto	Agenzia del Catasto di competenza	Comunità
Proprietà	Catasto	Agenzia del Catasto di competenza	Comunità
n. di visite (musei)/ n. giorni di permanenza/ n. di strutture di accoglienza	Provincia	Ufficio comunale di competenza	Comunità
n. di eventi	Governo locale	Ufficio comunale di competenza	Comunità
n. di abitanti, età, nazionalità, qualifica	Governo locale	Ufficio comunale di competenza	Comunità
Costi di manutenzione delle strade, delle piazze e dei parchi	Governo locale	Ufficio comunale di competenza	Comunità
Stato di conservazione degli edifici	Governo locale	Ufficio comunale di competenza / Esperti esterni - specialisti GIS / pianificatori	Comunità
Tipologie edilizie	Governo locale	Ufficio comunale di competenza / Esperti esterni - specialisti GIS / pianificatori	Comunità
Uso attuale dei piani terra e uso prevalente degli edifici	Governo locale	Ufficio comunale di competenza / Esperti esterni - specialisti GIS / pianificatori	Comunità
Aree degradate	Governo locale	Ufficio comunale di competenza / Esperti esterni - specialisti GIS / pianificatori	Comunità

PROCESSO DO
MONITORAGGIO:
PRIORITÀ LOCALI

MONITORING
PROCESS:
EFFECTIVE
METHODS



ARGOMENTO	METODI DI MISURAZIONE	SCALA DI MONITORAGGIO	PERIODICITA' DI MONITORAGGIO
Uso del suolo	Piano di uso del suolo	Edifici	Sempre aggiornato
Mappa catastale	Registro catastale	Edifici	Sempre aggiornato
Proprietà	Registro catastale	Edifici	Sempre aggiornato
N. di visite (musei)/ N. giorni di permanenza/ N. di strutture di accoglienza	Statistiche turistiche	Area	Disponibile ogni anno
N. di eventi	Statistiche turistiche	Area	Disponibile ogni mese
N. di abitanti, età, nazionalità, qualifica	Registro della popolazione	Area	Sempre aggiornato
Costi di manutenzione delle strade, delle piazze e dei parchi		Area	Sempre aggiornato
Stato di conservazione degli edifici	Analisi	Edifici	2018 (dipende dagli appalti pubblici)
Tipologie edilizie	Analisi	Edifici	2018 (dipende dagli appalti pubblici)
Uso attuale dei piani terra e uso prevalente degli edifici	Analisi	Edifici	2018 (dipende dagli appalti pubblici)
Aree degradate	Analisi	Edifici	2018 (dipende dagli appalti pubblici)



1.2 POPRAD - SLOVAKIA (PP2/PP7)

TITLE	STATE OF THE ART AND MONITORING SYSTEM REQUIREMENTS FOR RISK MANAGEMENT, REUSE, ENERGY PERFORMANCES
FINAL DELIVERABLE	D.T 2.2.3 - Bilingual guide-lines for the local development of a Monitoring Plan for the HBA
AUTHORS (Organization/s)	PP2/PP7

Úvod

Mesto Poprad je projektovým partnerom a zároveň pilotnou oblasťou pre monitorovacie nástroje. Mesto Poprad s podporou pracoviska SPECTRA bude testovať WEB-GIS riešenie pre špecifické modelové územie mesta v rámci zvolenej témy (energetická efektivita). Energetická efektivita na úrovni mesta a na úrovni jednotlivých budov rovnako patrí medzi hlavné záujmy rozvojovej stratégie mesta.

V súčasnosti energetická efektivita je jednou z najväčších výziev v historických mestských oblastiach. Energetická efektivita má vplyv na viacero faktorov v historických mestských oblastiach vrátane ich udržateľnosti, odolnosti a ekonomiky.

Výber vhodných opatrení musí vychádzať z relevantného monitorovania a hodnotenia vo vybranom modelovom území. Samospráva pre tento projekt vybrala dve historické oblasti: 1. Spišská Sobota a 2. Sídliisko Juh III.

Hlavnou ideou je identifikovať prvky spôsobujúce prehrievanie v rámci urbánnej mierky a definovať správne opatrenia. Následne vzniká potreba monitorovať efektivitu týchto opatrení a navrhnúť úpravy.

Očakáva sa, že opatrenia ovplyvnia spotrebu energií v budovách (na chladenie alebo kúrenie), preto by mali zahŕňať technologické a stavebné zásahy.

V rámci výstupu DT221 boli ako hlavné témy pre monitorovanie identifikované **energetická efektivita a urbánne tepelné ostrovy**. Tieto témy vychádzajú z idey energeticky efektívneho mesta, ktorá je definovaná v miestnej stratégii rozvoja.

Pre tieto témy existuje celý rad ukazovateľov, ktoré je možné sledovať vrátane dát o využití územia, vlastností stavieb, použitých materiáloch, spotrebe energií, zeleni, mikroklimu apod.

Prehrievanie sídiel je nebezpečné pre značnú časť populácie, napr. deti a starší obyvatelia. Boli vybraté obytné lokality s vnútroblokmi a verejnými priestormi (aj s verejnými budovami), ktoré sú typickými urbánnymi prvkami, kde je možné sledovať tepelné ostrovy a kde sa koncentrujú spomenuté skupiny obyvateľov.

Očakávania ohľadom monitorovania vybraných tém zahŕňajú:

1. Analyzovanie tepelnej mapy mesta, identifikujúc tepelné ostrovy a príčiny prehrievania
2. Analyzovanie energetickej efektivity vybraných budov a vzťahov medzi vnútornými a vonkajšími tepelnými podmienkami

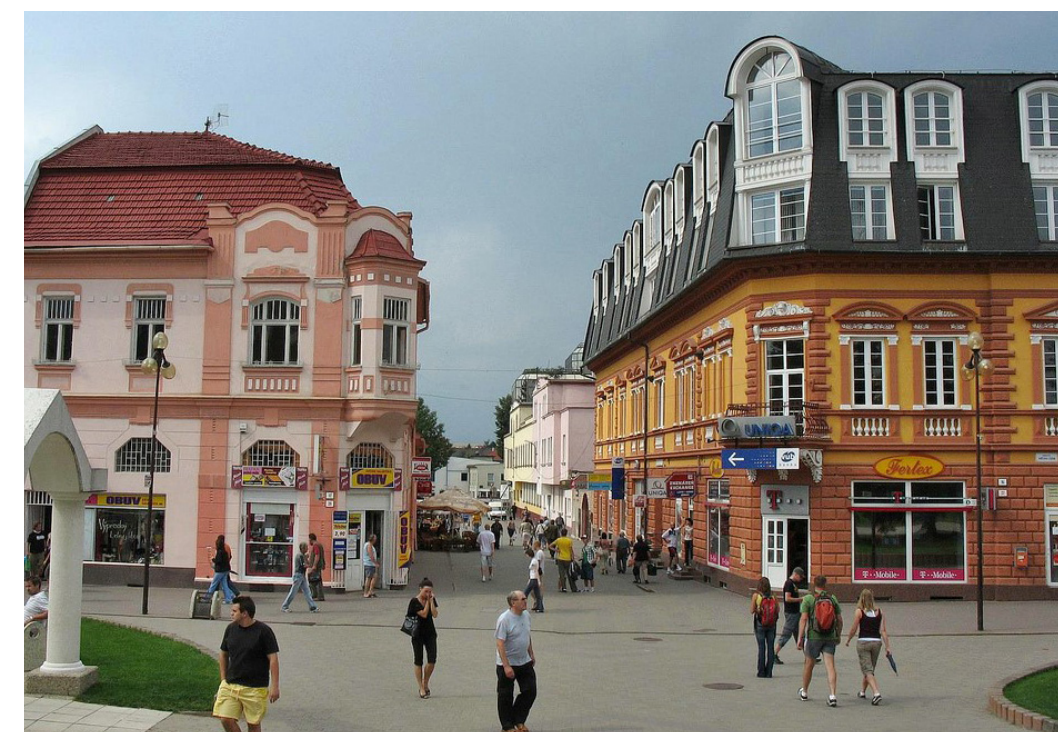
Tieto analýzy pomôžu definovať spoločné opatrenia pre obnovu mestského územia a definovať priority a efektívne nástroje pre energeticky neefektívne verejné budovy.

Téma	Vlastník dát	Zodpovednosť za zbieranie dát	Profitujúce skupiny
Základné údaje o využití územia	Samospráva, kataster nehnuteľností	Externý expert	Ide o základné údaje, ktoré sú potrebné pre podrobnejšie monitorovacie aktivity
Dáta o stave budov	Nedostupné	Príslušné oddelenie v rámci samosprávy	Ide o základné údaje, ktoré sú potrebné pre podrobnejšie monitorovacie aktivity
Energetická efektivita	Miestna energetická spoločnosť, vlastníci objektov	Príslušné oddelenie v rámci samosprávy	Vlastníci, obyvatelia, podnikatelia v sledovanom území
Tepelné ostrovy v meste	Nedostupné	Externý expert	Vlastníci, obyvatelia, podnikatelia v sledovanom území

PROCES
MONITOROVANIA:
MIESTNE PRIORITY

PROCES
MONITOROVANIA:
VÝBER METÓD

Téma	Existujúce zdroje informácií	Monitorovacie metódy	Mierka monitorovania	Periodicita monitorovania
Základné údaje o využití územia	Územný plán, katastrálne informácie, register obyvateľstva	Hlavné: Desk research, spracovanie dát v GIS	Malá/stredná (bloky budov)	Podľa potreby
Dáta o stave budov	katastrálne informácie, geometrické údaje, historické záznamy	Hlavné: Terénny prieskum (formuláre/štandardy), spracovanie dát v GIS	Veľká (budovy)	Ročne
Energetická efektivita	Energetická spotreba podľa miestnej energetickej spoločnosti	Hlavné: štatistické a technické merania	Veľká (budovy)	Ročne
Tepelné ostrovy v meste	Index zelene podľa územného plánu	Hlavné: termovízne snímkovanie (DPZ), spracovanie dát v GIS	Stredná/Veľká (bloky budov/objekty)	Po akejkoľvek zmene plánov v monitorovanom území





1.3 KARLOVAC - CROATIA (PP3/PP10)

Naslov	TRENUTNO STANJE I ZAHTJEVI SUSTAVA PRAĆENJA ZA UPRAVLJANJE RIZICIMA, PRE-NAMJENOM, ENERGETSKIM SVOJSTVIMA
Konačna isporučevina	D.T 2.2.3 - Dvojezični vodič za lokalni razvoj Plana praćenja zaštićene povijesne cjeline
Autori (organizacija/e)	Srećko Vrček (PP10)

Uvod

Ubrzanim širenjem Grada Karlovca, naročito sa izgradnjom Novog Centra od 1960. godine, započela je stagnacija i devastacije urbanog tkiva Gradske Zvijezde, najviše izražena u njezinom istočnom dijelu poznatom kao "Kineska četvrt". Također, nažalost, tijekom Domovinskog rata (1991.-1995.), granatiranje i bombardiranje teško je oštetilo preko stotinu objekata u zaštićenoj cjelini Gradske Zvijezde, a također i onih upisanih u Listu spomenika nacionalne važnosti (kao npr. crkva Presvetog Trojstva sa franjevačkim samostanom, crkva Sv. Nikole, Gradski muzej, zgrada Gradske vjećnice itd.). Svi ovi razlozi doveli su do činjenice da su zgrade u vrlo lošem stanju te ih treba obnoviti.

Zgrade u zaštićenoj povijesnoj cjelini uglavnom su izgrađene od masivnih nosivih zidova od cigle, kamena ili oboje - cigle i kamena, stropne ploče su izrađene od drvenog grednika, svodovi su izvedeni od cigle dok je krovna konstrukcija izvedena od drveta te pokrivena glinenim crijepom. Ulice i trgovi uglavnom su popločeni kamenom (granitnim kockama ili kamenim pločama).

Također, Grad Karlovac je u 2017. godini usvojio document pod nazivom Urbanistički plan uređenja "Zvijezda" koji predstavlja polazišnu točku za određivanje trenutnog stanja zaštićene povijesne cjeline. Zbog toga postoji realna potreba za praćenjem implementacije ovoga dokumenta, posebno uzimajući u obzir kompleksnost i potrebu za uključenjem različitih dionika u sam proces implementacije.

Namjera je primjeniti i koristiti dostupne, po mogućnosti besplatne IT alate temeljene na BIM (eng. Building Information Modeling) tehnologiji pomoću kojih će se moći pratiti zadani atributi na konkretnim građevinama na web dostupnoj platformi. Cilj implementiranog IT alata je da isti bude od pomoći pri donošenju odluka prilikom korištenja i održavanja građevina te budućih investicijskih projekata u Gradu Karlovcu. Razvijeni IT alat treba omogućavati pregled 3D BIM modela i baze podataka koji/a će biti integriran/a na postojećoj web GIS platformi Grada Karlovca. Pilot zgrada za testiranje IT alata će biti zgrada Gradske uprave. Implementaciju IT alata treba provesti u tri koraka detaljnije opisanih u



nastavku:

1. Razvoj BIM modela

Model sa informacijama o građevnim dijelovima i korištenim materijalima trebao bi služiti kao:

A. Energetski model - informacijski model koji ima fizička svojstva ovojnice grijanog dijela zgrade i granične uvjete istih. Znači, model treba pružati uvid u postojeće energetske stanje građevine.

B. Arhitektonski model - informacijski model u ovom smislu mora pružati informacije o stanju građevinskih dijelova zgrade - stanju krova/pokrova, vanjskom i unutarnjem izgledu te stanju ovojnice - zidovi, podovi, stropovi (razmotriti mogućnost dodjeljivanja fotografija), korištenim materijalima, stilu gradnje i vremenskom razdoblju, etažnosti i visini, volumenu te bruto i neto površinama.

PROCES PRAĆENJA: LOKALNI PRIORITETI

2. Izrada baze podataka

Potrebno je izraditi središnju bazu podataka koja trajno postoji u COBie (eng. Construction Operations Building information exchange) okruženju, u koju svi relevantni sudionici mogu poslati informacije ili gdje ih se po potrebi može prihvatiti. Izrađena baza podataka mora služiti za prikupljanje podataka tijekom cijelog životnog vijeka građevine. Tablica mora biti strukturirana na način da omogućuje upis više građevina. U ovoj fazi je potrebno definirati strukturu i ključne elemente COBie modela podataka te koje informacije trebaju biti postavljene u BIM model.

3. Uvoz BIM modela sa podacima na web platformu

U trećem koraku potrebno je povezati 3D BIM model sa pripadajućom bazom podataka i web GIS platformu koja će biti dostupna svim relevantnim dionicima u procesu provedbe projekta, od idejnog rješenja do faze upravljanja i korištenja.

Povezani model na GIS platformi mora pružati osnovne informacije (attribute) o zgradi kao što su namjena građevine, podaci o vlasništvu, legalnost, stupanj konzervatorske zaštite, bruto i neto građevinska površina, volume, broj etaža, energetska razred zgrade (označiti u boji) i podaci o potrošnji energenata i vode, godinu i stil izgradnje, godinu rekonstrukcije, stanje građevnih dijelova zgrade (krov, fasada, stolarija, konstrukcija), vrstu ugrađenog materijala i predviđene mjere sa troškom obnove/buduću namjenu te fotografiju.

Informacije na web GIS sučelju moraju imati mogućnost filtriranja prema zadanim kriterijima te pri tome kreirati mape za svaku zadanu varijablu (npr. označiti crveno sve zgrade koje imaju krovništa u jako lošem stanju ili zgrade koje imaju problema sa statikom fasade pročelja i dr.).

Potrebno je ispitati mogućnost primjene iste baze podataka za BIM model i za web GIS sučelje.

Prije izrade platforme potrebno je usuglasiti sa Gradom Karlovcem točan broj i vrstu podataka/varijabli koje će biti integrirane u bazi i koje će biti potrebno prikupiti.

PREDMET	VLASNIK PODATAKA	PRIKUPLJANJE PODATAKA	KORISTI PRAĆENJA
Izvešće o energetske pregledu, energetski certifikat - sastav građevinskih dijelova građevine, energetski razred	Privatnik ili jedinice lokalne i regionalne samouprave	REGEA	Sastav građevinskih dijelova zgrade prije i poslije obnove/ rekonstrukcije te njihovi koeficijenti prolaska topline
ISGE - potrošnja energenata i vode prije i poslije obnove/ rekonstrukcije	Ministarstvo graditeljstva i prostornog uređenja	REGEA, dostupno na webu	Usporedba potrošnje energenata i vode prije i poslije obnove/rekonstrukcije
Projektna dokumentacija (postojeća i buduća) - glavni projekt, nacrti, skice, arhivski materijal	Privatnik ili jedinice lokalne i regionalne samouprave konzervatorski odjel arhiva	REGEA	Osnovni podaci o stanju građevinskih dijelova, površinama, volumenu, izgradnje, interijera, zgrade stilu vremenu stanju namjena
Priručnik o provedbi energetske učinkovitosti u objektima kulturne baštine - ulazni podacima obnovu/ rekonstrukciju	REGEA	REGEA	Vodič za rekonstrukciju - smjernice koje se mogu koristiti za obnovu/ rekonstrukciju,
GIS - Grad Karlovac	Grad Karlovac	Grad Karlovac	Poboljšanje postojeće GIS platforme

PROCES
PRAĆENJA:
LOKALNI
SUDIONICI

PROCES
PRAĆENJA:
UČINKOVITE
METODE

PREDMET	IZVOR PODATAKA	METODE MJERENJA	MJERILO PRAĆENJA	PERIODIČNOST PRAĆENJA
Zvješće o energetske pregledu, energetski certifikat - sastav građevinskih dijelova građevine, energetski razred	Nergetski certifikat, izvješće o energetske pregledu	Teorijsko istraživanje, Kao opcija metode mjerenja: - termovizija; - ispitivanje zrakonepropusnosti	Istraživanje, Kao opcija metode mjerenja: - termovizija; - ispitivanje zrakonepropusnosti Detaljno na samoj građevini	Ad hoc - ovisno o potrebama
ISGE - potrošnja energenata i vode prije i poslije obnove/ rekonstrukcije	Podaci dostupni na webu	Teorijsko istraživanje	Detaljno za konkretnu građevinu	Ad hoc - ovisno o potrebama
Projektna dokumentacija	Glavni projekt, nacrti, skice, arhivski materijal (postojeća i buduća)	Teorijsko istraživanje, Kao opcija metode mjerenja: terensko istraživanje, različita mjerenja (lasersko skeniranje i dr.)	Detaljno za konkretnu građevinu	Ad hoc - ovisno o potrebama Dodana vrijednost: podaci mogu biti vizualizirani na GIS sučelju radi dobivanja šire slike/stanja promatrane cjeline





1. Renaissance castle in Vaja (17th century)
2. Vajai vár belső (17. század)
3. Medieval reformed church in Csengersima (13th century)

1.4 SZALBOCS REGION - HUNGARY (PP4/PP11)

TITLE	STATE OF THE ART AND MONITORING SYSTEM REQUIREMENTS FOR RISK MANAGEMENT, REUSE, ENERGY PERFORMANCES
FINAL DELIVERABLE	D.T 2.2.3 - Bilingual guide-lines for the local development of a Monitoring Plan for the HBA
AUTHORS (Organization/s)	PP4

BEVEZETÉS

A Történelmi Épített Terület (Historic Built Area - HBA) Szabolcs-Szatmár-Bereg megyében, Magyarország északkeleti részén található. A ritkán lakott régió 6 várost és 38 falut foglal magában. A térség történelmi és kulturális fejlődésének következtében a történelmi épületek négy típusát tekinthetjük a HBA részének. A HBA legfontosabb helyi sajátosságai a következők:

A régióban számos, a 16. és a 19. század között épült kastély és kúria található, amelyek fő építészeti stílusai a reneszánsz, a barokk és a klasszicista.

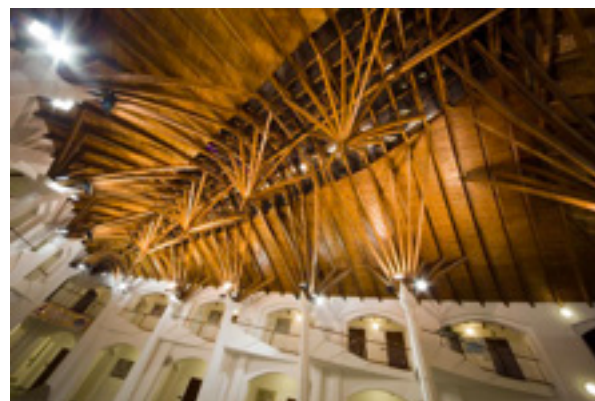
A térség (Szatmár régió) az egyik, középkori templomokban leggazdagabb területe az országnak. E templomok jellegzetes stílusjegyei a relatív kis méretük, a templom mellett található fa harangláb, a faragott szószék és a középkori freskók.

Anemesi kastélyok és kúriák, valamint a középkori templomok (többségében református templomok) meghatározták a régió legtöbb településének városképét, és megalapozták azok jövőbeli településfejlesztési irányait. Aparasztházaka természetben megtalálható építőanyagok felhasználásának bizonyítékai. A háromszobás épületek építészeti jellegzetességei a döngölt föld aljzat, az alacsony falazat, a nád borítású tető, a ház mélységében végig nyúló veranda, valamint a kert végében található magtár.

A Makovecz Imre nevével jelzett magyar organikus építészet Csenger város

központjának meghatározó építészeti stílusa.

Az épített örökség megőrzése egy fenntartható modell kialakítását igényli. Jelen projekt a HBA menedzsmentjének fejlesztésére összpontosít azáltal, hogy fenntartható módon egyesíti a történelmi örökség fenntartását az épületek megőrzésével és fejlesztésével. A monitoring kulcsfontosságú eleme a menedzsmentnek. A tevékenység értelmezhető úgy, mint egy folyamatos ellenőrző folyamat a kiválasztott történelmi építmények felett. A monitoringterv meghatározza a tervezett tevékenységek nyomon követésének legfontosabb témaköreit, a kapcsolódó mutatókat és a tevékenység felelőseit annak érdekében, hogy a végrehajtási időszak során felmerülő problémák feltárhatóvá váljanak, és lehetőség legyen a problémákra időben megfelelő megoldásokat találni.



4. Szatmári parasztház Pátyod

5. Makovecz Imre Általános Iskola Csenger

A monitoring tevékenységek három területre összpontosítanak, amelyek az építményekkel kapcsolatos alapadatok, az építmények állapotával kapcsolatos adatok és a fenntarthatósághoz köthető adatok. Az első két csoportba tartozó adatok olyan adatokat foglalnak magukba, mint az épületek mérete, építőanyagai, kora, állapota, az épületek használata, tulajdonviszonya, lakossága, jogi védelme stb. Az alapadatok további monitoring tevékenységek meghatározására is szolgálnak. A fenntarthatósági mutatókhoz kapcsolódó adatok az indikátorok másik fontos csoportját alkotják, amelyek hozzájárulnak ahhoz, hogy a program keretében kiválasztott történelmi struktúrák átalakulása teljes mértékben megfeleljen a fenntarthatósági szempontoknak. A dokumentum szempontjából a fenntarthatóság méréséhez kapcsolódó mutatók nyomon

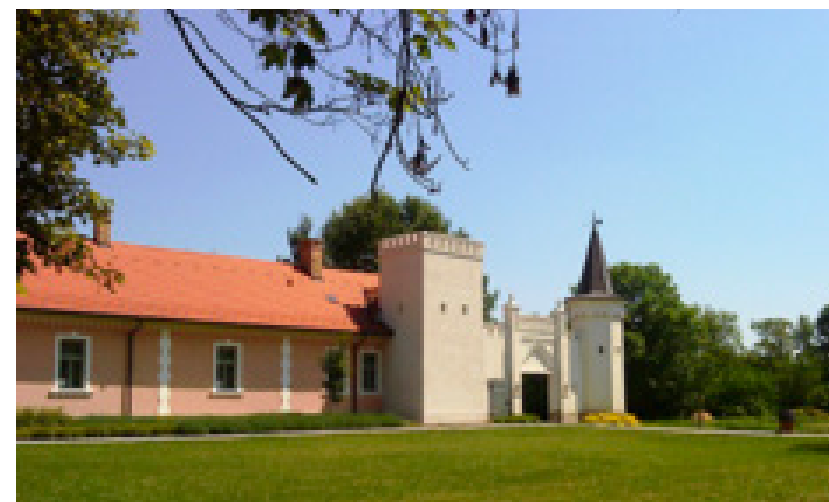
MONITORING
TEVÉKENYSÉG:
HELYI
PRIORITÁSOK

követése kiemelt jelentőségű. A fenntarthatóság méréséhez kapcsolódó indikátorok csoportjai és azok monitoringban betöltött szerepe a következő:

A környezeti jellemzők, például az energiahatékonyság, a hulladék- és a vízgazdálkodás, a környezetszennyezés, a mobilitás monitoringja fontos a környezeti fenntarthatóság mérése szempontjából. A tevékenység hozzájárul az energiahatékony és környezetbarát beruházások megvalósításához, valamint a veszélyforrásokat hordozó környezeti elemek, például az árvíz, a belvíz, a levegőszennyezés stb. hatásainak csökkentéséhez.

A társadalmi összetevők, mint például a közszolgáltatások, kulturális és szabadidős szolgáltatások meglétének és minőségének, a helyi identitás, a dzsentifikáció szintjének, a hozzáférhetőség és a biztonság helyzetének nyomon követése a területen megvalósuló beavatkozások társadalmi fenntarthatóságának mérése szempontjából jelentős. A tényezők monitoringja segíthet abban, hogy a program keretében befogadó, társadalmilag hasznos beruházások, tevékenységek valósuljanak meg.

A gazdasági szempontok, például a turizmus hatásának, a működtetés és az átalakítás költségeinek mérése fontos ahhoz, hogy betekintést nyerjünk a tervezett tevékenységek gazdasági hatásába. A monitoring hozzájárul egy hosszú távon, pénzügyi szempontból is fenntartható program megvalósulásához, és ahhoz, hogy a térségben mérhető legyen a turizmus pozitív és negatív hatása is.



6. Jékey Kúria Géberjén (19. század)

7. Szatmári paraszti ház belső - tisztaszoba

MONITORING TEVÉKENYSÉG: HELYI SZEREPLŐK

MONITORING TERÜLETE		ADAT TULAJDONOSA	ADATGYŰJTÉS FELELŐSE	MONITORING KEDVEZMÉNYEZETT
Épített terek és létesítmények	Alapadatok	Ingtalan magán/ köztulajdonosa	építész, mérnök technikus	Ingtalan magán/ köztulajdonosa
	Épületek állapota	Ingtalan magán/ köztulajdonosa		Ingtalan magán/ köztulajdonosa
Környezeti tulajdonságok	Energiahatékonyság	Ingtalan magán/ köztulajdonosa	Mérnök technikus, megbízott külső szakértő	Működtet, ingatlan magán/ köztulajdonosa
	Hulladék és vízgazdálkodás	Vízügyi hatóság, közszolgáltatási vállalat, katasztrófavédelem, települési önkormányzat	Vízmérnök, megbízott külső szakértő	Helyi lakosság, ingatlan magán/ köztulajdonosa
	Szennyezettség	Környezetvédelmi hatóság, települési önkormányzat	Megbízott külső szakértő	Helyi lakosság
	Mobilitás és elérhetőség	Települési önkormányzat	Megbízott külső szakértő	Helyi lakosság, turista
Társadalmi tényezők	Szolgáltatások és kapcsolódó létesítmények	Települési önkormányzat, egyesület	Megbízott külső szakértő	Helyi lakosság
	Kulturális élet és szabadidős lehetőségek	Települési önkormányzat, egyesület	Megbízott külső szakértő	Helyi lakosság
	Identitástudat	Települési önkormányzat, civil szervezet	Megbízott külső szakértő	Helyi lakosság
	Dzsentifikáció és együttélés	Települési önkormányzat, civil szervezet	Megbízott külső szakértő	Helyi lakosság
	Akadálymentesség	Ingtalan magán/ köztulajdonosa, települési önkormányzat, civil szervezet	Megbízott külső szakértő	Mozgáskorlátozott látogató
	Biztonság	Rendőrség, települési önkormányzat	Megbízott külső szakértő	Helyi lakosság
Gazdasági helyzet	Turisztikai hatások	Ingtalan magán/ köztulajdonosa, települési önkormányzat	Megbízott külső szakértő	Ingtalan magán/ köztulajdonosa
	Fenntartási költségek	Ingtalan magán/ köztulajdonosa	üzleti tanácsadó, megbízott külső szakértő	Ingtalan magán/ köztulajdonosa
	Átalakítási költségek	Ingtalan magán/ köztulajdonosa	építész, mérnök technikus	Ingtalan magán/ köztulajdonosa

MONITORING TEVÉKENYSÉG: HATÉKONY MÓDSZEREK

TOPIC		DESK SOURCES	MEASURING METHODS	MONITORING'S SCALE	MONITORING'S PERIODICITY
Épített terek és létesítmények	Alapadatok	építészeti és látványtervek	Műszaki mérések	Nagy méretarány, épített elemek részletes ábrázolása	Beavatkozás előtt és után
	Épületek állapota	Elérhető történelmi feljegyzések, fényképek	Távérzékelés, műszaki mérések	Nagy méretarány, épített elemek részletes ábrázolása	Beavatkozás előtt és után
Környezeti tulajdonságok	Energiahatékonyság	Elérhető energiafogyasztási adatok	Távérzékelés, műszaki mérések	Kis, közepes méretarány	Beavatkozás előtt és után
	Hulladék és vízgazdálkodás	Jelenleg elérhető statisztikai adatok, történelmi feljegyzések, közszolgáltatást nyújtó cégektől származó adatok	Vis major esetek és költségek, teleülési szintű hulladékgazdálkodási adatok	Kis, közepes méretarány	évente
	Szennyezettség	Környezetvédelmi hatóságtól származó adatok	Műszaki mérések (légszennyezettség)	Kis, közepes méretarány	évente
	Mobilitás és elérhetőség	közszolgáltatást nyújtó cégektől származó adatok	Statisztikai mérések (forgalom számlálás)	Kis, közepes méretarány	Helyi stratégiai és fejlesztési programhoz kapcsolódva (7 évente)
Társadalmi tényezők	Szolgáltatások és kapcsolódó létesítmények	Jelenleg elérhető statisztikai adatok	Kérdőívezés	Kis, közepes méretarány	Helyi stratégiai és fejlesztési programhoz kapcsolódva (7 évente)
	Kulturális élet és szabadidős lehetőségek	Elérhető történelmi feljegyzések, fényképek	Kérdőívezés	Kis, közepes méretarány	Helyi stratégiai és fejlesztési programhoz kapcsolódva (7 évente)
	Identitástudat	Elérhető történelmi feljegyzések	„Elmetérképezés”	Kis, közepes méretarány	Helyi stratégiai és fejlesztési programhoz kapcsolódva (7 évente)
	Dzsentifikáció és együttélés	Jelenleg elérhető statisztikai adatok	Kérdőívezés	Kis, közepes méretarány	Helyi stratégiai és fejlesztési programhoz kapcsolódva (7 évente)
	Akadálymentesség	Jelenleg elérhető statisztikai adatok	Kérdőívezés	Nagy méretarány, épített elemek részletes ábrázolása	Helyi stratégiai és fejlesztési programhoz kapcsolódva (7 évente)
	Biztonság	Jelenleg elérhető statisztikai adatok	Kérdőívezés	Kis, közepes méretarány	Helyi stratégiai és fejlesztési programhoz kapcsolódva (7 évente)
Gazdasági helyzet	Turisztikai hatások	Jelenleg elérhető statisztikai adatok	Statisztikai mérések, kérdőívezés	Kisméretarány	évente
	Fenntartási költségek	Jelenleg elérhető statisztikai adatok	Gazdasági és műszaki mérések	Nagy méretarány, épített elemek részletes ábrázolása	évente
	Átalakítási költségek	Jelenleg elérhető statisztikai adatok	Gazdasági és műszaki mérések	Nagy méretarány, épített elemek részletes ábrázolása	Beavatkozás előtt (becsült költségek) és után



1.5 BAD RADKESBURG - AUSTRIA (PP9)

Titel	STAND DER TECHNIK UND ANFORDERUNGEN AN ÜBERWACHUNGSSYSTEME FÜR RISIKOMANAGEMENT, WIEDERVERWENDUNG, ENERGIEEFFIZIENZ
Endgültiges Ergebnis	D.T 2.2.3 - zweisprachige Richtlinien für die lokale Entwicklung eines Monitoring Planes in denkmalgeschützten Gebieten
Autoren (Organisation)	Prof. Dr. Ulrike Pröbstl-Haider Dipl.-Ing. (FH) Oliver Schmid-Selig

INFÜHRUNG

Der historische Ortskern von Bad Radkersburg wurde 1978 mit der Europäischen Goldmedaille für den Schutz historischer Gebäude ausgezeichnet. Der alte Stadtkern war ursprünglich durch Wasser und Befestigungsanlagen von allen Seiten geschützt, die heute, zu einem Grüngürtel umgewandelt, den Stadtkern umschließen. Im Zentrum von Bad Radkersburg stehen alle Gebäude unter Denkmalschutz. Die oberen Geschosse sind überwiegend bewohnt, während im Erdgeschoss sich auch viele Geschäfte befinden. Der Ortskern wird durch Fernwärme und das heiße Thermalwasser umweltfreundlich beheizt. Allerdings bestehen keine Möglichkeiten den Besitzern der historischen Gebäude besondere Konditionen bei der Energieversorgung einzuräumen.

Die Dachlandschaft ist ebenfalls geschützt. Die bedeutet, wenn man eines der Gebäude mit mehrgeschossigem Dachstuhl erwirbt, kann dieser nur als Abstellraum nutzen kann.

Dennoch ist das Stadtzentrum noch relativ intensiv durch die einheimische Bevölkerung und Touristen genutzt. Es gibt auch Arbeitsplätze im Zentrum. Die Relevanz des Tourismus hat im Laufe der Zeit zugenommen, dadurch wurden auch inzwischen einige historische Gebäude in Gästehäuser umgewandelt.

Noch immer ist das Ortszentrum auch das kulturelle Herz der Stadt. Dies zeigt sich u.a. in der Nutzung des Markplatzes für Märkte, Festivals und

Veranstaltungen während des ganzen Jahres. Einschränkungen durch den begrenzten Parkraum wurden durch neue Parkplätze im Grüngürtel verbessert. Insgesamt ist das Ortszentrum sehr wertvoll für die Stadt, den Tourismus und die lokale Lebensqualität seiner Einwohner.

Im Hinblick auf ein maßgeschneidertes Monitoring Konzept, zählen vor allem der Hochwasserschutz und Nutzungsaspekte zu den wichtigen Aufgaben.

Basierend auf weitreichenden Analysen des historischen Zentrums wurden verschiedene mögliche Inhalte für ein Monitoring überprüft. Dazu gehörten unter anderem die Abwasserproblematik, Luftverschmutzung, Mobilität und Zugänglichkeit, Gentrifikationseffekte und Risiken natürlichen Ursprunges. Vor diesem Hintergrund wurden für die zukünftige Entwicklung des denkmalgeschützten Bereichs zwei wesentliche Aspekte für ein Monitoring vorgeschlagen, die nachstehend erläutert werden:

- a) Die Überwachung der Wasserpegel der Mur und des Grundwasserstands,
- b) Die Überwachung der genutzten und ungenutzten Gebäudeteile bzw. Raumanteile.

Das Hochwasserrisiko besteht durch die Lage am Fluss Mur. Die Hochwassergefahr hat auch die Entwicklung der Altstadt in der Vergangenheit stark geprägt. Allerdings wurde ein Hochwasserschutzkonzept entwickelt, das in den vergangenen 2 Jahren im städtischen Bereich auf einer Strecke von 9 Kilometern noch einmal ertüchtigt wurde und damit auch ein hundertjähriges Hochwasser berücksichtigt. Diese Verbesserung soll auch mögliche Einflüsse durch den Klimawandel mit abdecken. Im Hinblick auf die Stabilität der historischen Bausubstanz ist auch ein Monitoring des Grundwasserstandes essentiell.

Darüber hinaus ist es eine herausfordernde Aufgabe für die Stadt die Grundeigentümer und Besitzer der historischen Gebäude in der Innenstadt dahingehend zu unterstützen, ihre nutzbare Fläche, unter Beibehaltung der hohen denkmalpflegerischen Qualität zu erhöhen. Verbesserungen der nutzbaren Kubatur und Richtwerte für die Erstellung und den Unterhalt der Gebäude, bezogen auf die nutzbaren Quadratmeter des jeweiligen Gebäudes, wären eine wichtige Hilfe, um die Bereitschaft für die Erhaltung und Nutzung der alten Gebäudesubstanz zu erhöhen.

MONITORING
PROZESS:
LOKALE
PRIORITÄTEN

MONITORING
PROZESS AUS
LOKALER SICHT

THEMA	DATEN BESITZER	DATEN SAMMLER	VORTEILE DES MONITORING
Hochwasserschutz Grundwasserstand	Lokale Wasserbehörde	Lokale Wasserbehörde	Alle Grundbesitzer im Zentrum
Gebäudenutzung im historischen Stadtkern	Daten werden bislang nicht erhoben	Projektpartner, Universität	Alle Grundbesitzer im Zentrum und an Nutzung und Kauf einer geschützten Immobilie interessierte Personen

MONITORING
PROZESS:
EINGESETZTE
METHODEN

THEMA	QUELLEN	MESS METHODEN	MONITORING EINHEITEN	PERIODEN DES MONITORINGS
Hochwasserschutz Grundwasserstand	Pegelmess-punkte entlang der Mur und Grundwasser-messpegel ebenfalls für Langzeit-messung in einer Parkfläche nahe des historischen Ortszentrums	Offizielle Messmethode von Pegelständen für Oberflächen-wasser und Grundwasser	http://ehyd.gv.at/?g_car_d=pegel-aktuell# in Meter herausgegeben vom Ministerium für Nachhaltigkeit und Tourismus	Monatlich seit 1988 auch für Grundwasser
Gebäudenutzung im historischen Stadtkern		Keine offizielle Methode festgelegt	Genutzte und ungenutzte Gebäude als Ganzes werden derzeit in der Planung berücksichtigt. Eine differenziertere Vorgehensweise mit Angaben zum umbauten Raum in m ³ sollte umgesetzt werden	Derzeit nicht angewandt



1.6 MUKULOV - CZECH REPUBLIC (PP12)

TITLE	POŽADAVKY MONITOROVACÍHO SYSTÉMU NA ŘÍZENÍ RIZIK, ZNOVUVYUŽITÍ A ENERGETICKÉ NÁROČNOSTI
FINAL DELIVERABLE	D.T 2.2.3 -Zásady místního rozvoje monitorovacího plánu památkových rezervací (HBA)
AUTHORS (Organization/s)	IURS, z.s. CR

ÚVOD

Charakteristické rysy MPR Mikulov

- Vyhlášená svojí historií ztělesněnou architektonickými monumenty a v relativně malém jádru města s bohatou vinařskou tradicí
- Mikulov je součástí CHKO Pálava a začíná zde Lednicko-valtický areál (UNESCO)
- Regenerace MPR Mikulov je koncepčně podporována městem a dalšími zapojenými institucemi, MPR management čelí řadě problémů ovlivňujících regenerační proces, které mohou být popsány následovně:

- dosud není schválen nový územní plán, regulační plán MPR dosud chybí též (realizace 2018)
- charakteristickým rysem regeneračního procesu jsou převažující základní záchranné práce a obnova vnějšího pláště historických budov
- technický stav některých objektů může znamenat trvalé ztráty historických hodnot, vysoké
- finanční požadavky na regeneraci MPR, nedostatek zdrojů na údržbu, problematické plánování údržby/oprav
- dlouhodobě nevyužívané objekty, proluky, neobydlený stav některých veřejných prostranství

- zvyšující se dopravní zátěž
- zastaralý stav technických sítí

důvody potřeby monitorovacího plánu

Program regenerace by měl být chápán jako otevřený projekt, který na základě nově objevených skutečností bude postupně obměňovat, doplňovat a rozvíjet, aby neustále odrážel současnou situaci a potřeby MPR Mikulov. Jelikož je obtížné vyčíslit skutečné náklady, které je nutno vynaložit na regeneraci - je potřeba pořídit monitorovací plán.

Podpůrná fakta a očekávané výsledky

- aktualizovaný regenerační program MPR Mikulov navazuje na předchozí dokument (2005) a jeho výstupy jsou průběžně dokumentovány a analyzovány
- cyklus aktualizace regeneračního programu byl nastaven na 5 leté období
- monitoring regeneračního procesu je základem strategického návrhu MPR Mikulov
- počet nově doporučených projektů
- bude stanoven celkový objem finančních prostředků investovaných do údržby historických památek

Obecně jsou ze strany vedení MPR Mikulov sledovány a upřednostňovány tvrdé indikátory o stavu objektů, dopravním řešení a dostupnosti cílů a služeb v MPR včetně jejich nákladovosti. Monitoring úspor zaváděním energeticky šetrných opatření ani sledování insolace či indexu ozelenění nejsou dosud rozšířeny, pro posouzení relevance těchto indikátorů bude třeba využít zkušenosti ostatních projektových partnerů.

*1= nejnižší, 9 = nejvyšší

MONITOROVACÍ
PROCES: MATICE
MÍSTNÍCH
PRIORIT

PRIORITA	DŮVOD VÝBĚRU	OČEKÁVÁNÍ	RELEVANCE PRO MPR MIKULOV*
Data o stavu objektů	Klasifikace technického stavu jednotlivých památek (hodnocení stavu kulturního dědictví) systém hodnocení 1-5	- nezbytné pro stanovení priorit (kompoziční analýza) - lze definovat finanční potřeby a vhodné zdroje	9
Vlastnická struktura	Základní informace pro dokumentaci (doplňující info monitoringu stavu)	- přehledná situace o kompetencích k majetku	6
Náklady na údržbu	Nezbytné k zacílení finančních zdrojů	- lze definovat finanční potřeby a vhodné zdroje	6
Služby a vybavení	Chybí vybavení architektonickými doplňky a venkovním inventářem	- dořešení drobného majetku (inventáře) v souladu s hodnotami historického centra	7
Mobilita	Monitoring intenzity dopravy	- řešení parkování (záchytné parkoviště pro návštěvníky) - definice pěší zóny - vhodnější řešení stávajícího jednosměrného systému	8
Index přehřívání měst (urban heating index - UHI)	Zvýšení kvality života obyvatel města	- návrh rozmístění/doplnění městské zeleně - doporučení pro regulační plán MPR Mikulov	3
Energetické úspory	Při regeneraci konflikt energetických úspor a památkové ochrany řešení environmentální otázky je vyváženo estetickou a kulturně historickou hodnotou	- monitoring % recyklace stavebního odpadu % vody a úspory energie, % úspory primárních surovin - zaměření na inteligentní veřejnou infrastrukturu (koncept smart city)	4
Dopad cestovního ruchu	Podpora CR je jednou z hlavních priorit města	- lze definovat finanční potřeby a vhodné zdroje - stanovení limitů města pro CR zvyšování image města	7
Dostupnost	Problematické řešení bezbariérovosti v MPR (historické územní dispozice - uliční síť)	- monitoring vhodných míst MPR pro zavedení bezbariérové dostupnosti	8

téma	vlastník dat	sběratel dat	uživatelé monitoringu
Zastavěný prostor a stav památek	Město / stavební úřad národní instituce	Město / stavební úřad	Město, vlastníci
Environmentální charakteristiky	Energetická agentury (privátní instituce)	UHI - město (územní plán) mobilita Územně analytické podklady úspory energií - privátní instituce	Město (pořizovatel strategických a koncepčních dokumentů) majitelé, obyvatelé
Prvky sociální infrastruktury	Město, privátní instituce	UHI - město (územní plán) mobilita Územně analytické podklady úspory energií - privátní instituce	Město, majitelé, obyvatelé
Ekonomické aspekty	Město Regional / National bodies	Náklady na údržbu - město dopady na cestovní ruch - (mikro) regionální úřady	Město, vlastníci

MONITOROVACÍ
PROCES: ROLE
MÍSTNÍCH HRÁČŮ

MONITOROVACÍ
PROCES:
EFEKTIVNÍ
METODY

téma	zdroje	hodnotící metody	monitorovací měřítko	monitorovací perioda
Zastavěný prostor a stav památek	Aktuálně dostupné údaje, historické záznamy, archeologické záznamy, fotografie, geometrické plány	Metoda výzkumu od stolu; návštěva lokality	Střední, velké	Nepřetržitě - 1rok
Environmentální charakteristiky	Data místní energetické spol.; územní plán	Metoda výzkumu od stolu; statistické a technické databáze	Střední, velké	EE - nepřetržitě - 1rok pevně stanovená periodičita** doporučený aktualizací regenerace MPR je 5 let
Prvky sociální infrastruktury	ÚAP; regulační plán	Metoda výzkumu od stolu; crowdsourcing* střední	Střední	Pevně stanovená periodičita - doporučený cyklus aktualizací programu regenerace MPR je 5 let
Ekonomické aspekty	Průzkum cestovního ruchu (tourism impact)	Metoda výzkumu od stolu; formuláře standardních kontrolních seznamů	Střední	Nepřetržitě - 1rok

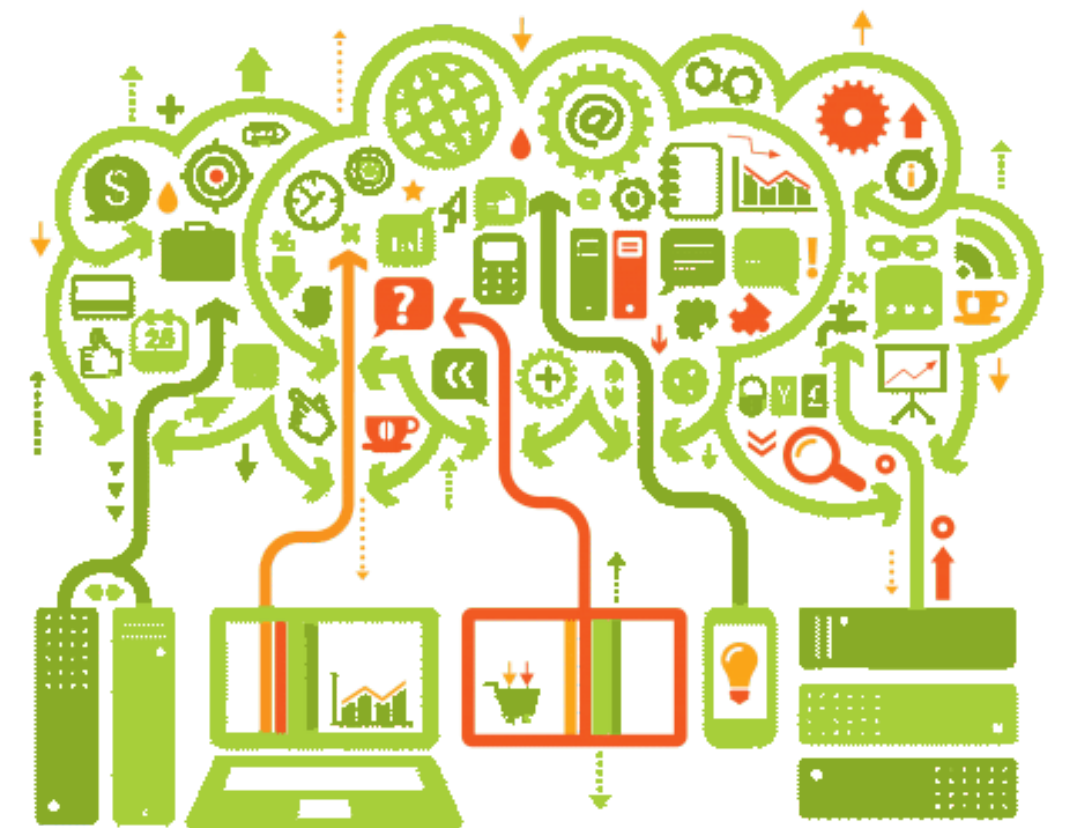
* crowdsourcing - zapojení veřejnosti (i neodborné) do procesu hledání vhodného řešení

** pevně stanovená periodičita - doporučený cyklus aktualizací programu regenerace MPR je 5 let



CHAPTER 3

EMPTY TEMPLATES



The deliverable contains the specifications at local level of the pilot areas, in order to develop a Monitoring Plan of HBA according to the following methodological model:

INTRODUCTION

Summarize the local features of your HBA and the reasons of a needs of a Monitoring Plan
 NO MORE THAN 2.000 characters (spaces included)

**MONITORING
 PROCESS: LOCAL
 PRIORITIES**

Select among DT221 the main topics for a monitoring process in your HBA and explain. -the reasons of that selection
 -the expectations about the monitoring of those topics
 NO MORE THAN 2.000 characters (spaces included)

**MONITORING
 PROCESS: LOCAL
 PLAYERS**

Referring to DT222, explain the possible players of a monitoring activities of the selected topics in your local context, by filling this table.

TOPIC	DATA OWNER	DATA COLLECTOR	MONITORING'S BENEFICIARIES

**MONITORING
 PROCESS:
 EFFECTIVE
 METHODS**

According to the general indications and options mentioned in DT222, select tentative approaches for your local situation and the selected topics

TOPIC	DESK SOURCES	MEASURING METHODS	MONITORING'S SCALE	MONITORING'S PERIODICITY