

Coal Mining Museum in Zabrze – INTERREG project idea

Title of the project: Triple Transformation/ Just Transition/ Post-carbon futures/ Heterotopia / Industrial heritage

Key features of the project decoded:

Triple Transformation: This refers to three simultaneous or sequential transformations happening within the targeted areas. These include shifts away from reliance on carbon-based industries, changes in economic structures, and transitions toward more sustainable practices.

Just Transition Areas: These are regions that are undergoing or are expected to undergo substantial economic and social changes due to shifts away from carbon-intensive industries. The concept of a "just transition" emphasizes ensuring that these changes are fair and equitable for all stakeholders, particularly workers and communities that are at highest risk to be severely affected by the transition.

Post-Carbon Futures: This indicates a focus on envisioning and planning for futures that are not dependent on fossil fuels or other carbon-intensive sources of energy. It suggests exploring alternative energy sources, sustainable practices, and technologies to mitigate climate change and reduce carbon emissions.

Heterotopia of Post-Industrial Heritage: "Heterotopia" typically refers to spaces or places that exist outside of normal societal structures or norms. In this context, it implies that the post-industrial heritage sites within the targeted areas are seen as unique or alternative spaces with their own cultural, historical, and economic significance. The project may aim to explore how these heritage sites can be repurposed or reimaged in the context of sustainable development and tourism.

Coherence in Regional Policies: This is an effort to align various policies at the regional level to support the goals of sustainable development, economic diversification, and social equity. It involves coordinating efforts across different government agencies, stakeholders, and sectors to ensure a unified approach to addressing the challenges and opportunities in these areas.

Sustainable Tourism: This highlights the potential role of tourism as a driver of economic development in the targeted areas. Sustainable tourism practices aim to minimize negative impacts on the environment and local communities while maximizing benefits such as job creation, cultural preservation, and revenue generation.

Areas of planned project activities:

- Social dimension: Protection and popularization of the tradition of mining brass bands and the cult of Saint. Barbara in Silesia

The phenomenon of mining complexes has been consistently building regional identity for over a century, ensuring the integration of local communities. They represent both workplaces and the communities gathered around them. Mining brass bands consistently maintain a reservoir of values and symbols that build local identity, which allows them to be perceived as a symbol and lasting heritage of the region. In 2023, the cultural traditions of mining brass bands from Upper Silesia were entered into the National List of Intangible Cultural Heritage by decision of the Minister of Culture and National Heritage. The Coal Mining Museum in Zabrze was the coordinator of the preparation of the above-mentioned application and being aware that there is a need to further support members of mining orchestras in their activities undertaken to protect and popularize the inscribed element, in accordance with the provisions of the application: "For us, the key to maintaining the continuity of the impact of the phenomenon is the continuation of artistic, social and educational activities."

The phenomenon of the cult of Saint Barbara over the course of two centuries in the broad cultural context of the region consists of elements related to the intangible and tangible cultural heritage of the professional group of miners: piety customs (community prayers), images of Saint. Barbara located in the mines and the celebration of St. Barbara's Day. Barbara, popularly known as Barbórka. All these elements create a holistic picture of worship. Mining cult of Saint Barbara in Upper Silesia is unique on a global scale. Nowhere else was a saint worshiped en masse on the premises of workplaces. The religiosity of the Upper Silesian people, shaped over the centuries, was and still is strong, of which a special example and an important role model is Saint. Barbara, whom Silesians gave the status of a unique companion in everyday life. The belief in the benefits of obedience to the Saint and the safety it

provides at work, but also on the way back home, is still alive. Among the miners' brothers, it is believed that before December 4, Saint Barbara takes home several miners who are leaving for the eternal shift. The annual celebrations include religious and secular celebrations for miners and local communities in mining and post-mining towns. Miners wear ceremonial uniforms or work clothes and organize public marches through the places where they work, together with representatives of communities, associations and local authorities. Parades are often led by miners' brass bands. Barbórka and mining traditions are of great importance today for identity, especially for communities in post-mining areas.

- Digital dimension: Digitization of the resources of the tangible and intangible mining heritage of Upper Silesia

The Coal Mining Museum in Zabrze has a collection digitization workshop with subsystems supporting the management and inventory of digitized collections (e-Museum). Scans of exhibits are made using various technologies in order to make them available online and/or further use for VR solutions. Additionally, in digital form, a database with information on museum resources is available, which serves as a "knowledge base" for interested people or a scientific zone (with the possibility of renting exhibits, making inquiries, and a picture gallery).

Digitization works respond to the need to document liquidated mining plants - the industrial heritage of Silesia. As part of the project, machines and devices along with their surroundings were digitized in 3D technology. The aim of digitization activities is to scan and digitize coal mine facilities in their entirety (before their liquidation): not only documentation, but also buildings, structures, machines, devices, technological lines, equipment and workings. Digitization is not only the cheapest, but also the most acceptable form of comprehensive heritage preservation and the starting point for creating interesting VR solutions.

- Ecological dimension: Sustainable tourism and shaping the ecological awareness of the local community

The Silesian Voivodeship is the largest mining region in the European Union, which is undergoing a transformation process that poses increasing challenges. The transition from a high-emission to a zero-emission economy should take place with particular emphasis on the well-being of local people in terms of continued employment and the environment in which they live.

Educational activities shaping awareness of the green economy and ecology are carried out based on the concept of educating and educating society in the spirit of respect for the natural environment in accordance with the motto: think globally - act locally. They also develop the necessary motivation, attitudes, skills and ecological behaviors.

Children and young people are the best investment in the future, which is why activities to increase awareness are primarily targeted at this group of recipients. Some of the activities are carried out for families in which Silesian traditions and customs are passed down from generation to generation. Educational activities enable the presentation of difficult topics in an accessible way and are a response to the problem of how to take care of the climate and carry out a just transformation while maintaining local and regional identity and bonds with history and industrial heritage.

Allowing local community participation in development planning processes is of great importance for sustainable tourism. This is an element that ultimately affects the quality of the services offered. The inhabitants of the region will play an important role in promoting environmentally friendly practices and encouraging visiting tourists to use and replicate pro-ecological activities. The development of the services of the Coal Mining Museum in Zabrze should not only generate new sources of income for local communities, but also translate into green priorities that are already effectively implemented. These include, among others: using renewable energy, or creating "green" relaxation and education zones: Park 12c, green area around the Water Tower, vertical garden, community garden (planned).

Coal Mining Museum (Guido Coal Mine in Zabrze, Poland) – portfolio & related projects

The Museum is located in the highly industrialized Silesia region in Poland, where with the use of VR game and 3D visualization and with a special focus on climate change, just and green transformations, local CCIs will support the development of cross-sectoral creative hubs, involving several local actors e.g., ERIH Anchor Point, the historic Guido Coal Mine in Zabrze¹, Europa Nostra awarded Conservation project 2019², and chosen by the European Heritage Hub as one of the 10 Local Good Practices, for project called "Preservation of the cultural heritage of Silesian industry via the creation of digital artifacts".³



The **Coal Mining Museum in Zabrze** is one of the largest and most frequently visited tourist facilities related to industrial heritage in Poland and a leader in coal mining heritage tourism throughout Europe. It introduces the inhabitants of the region and guests from all over the country and abroad to the valuable heritage of Silesian hard coal mining - both tangible and intangible. Through the history of Silesian mining, it shows the impact that heavy industry had on the development of cities and entire regions. Based on this heritage, it also presents universal stories of the development and transformation of traditional industries that have occurred in many regions of Europe.

The Coal Mining Museum in Zabrze is a local government cultural institution co-run by the City of Zabrze and the Silesian Voivodeship. The museum conducts extensive activities in the field of science, research, publishing and exhibition. At the same time, it also manages unique and exemplary revitalized post-industrial heritage facilities with cultural, tourist and educational functions:

- Guido Mine complex with two levels of sightseeing, including an underground chapel,
- Queen Luiza Adit Complex with a unique water route.

¹ <https://www.erih.net/i-want-to-go-there/site/guido-coal-mine>

² <https://www.europeanheritageawards.eu/winners/queen-louise-adit-complex-poland/>

³ <https://www.europeanheritagehub.eu/european-heritage-hub-announces-open-call-results-selecting-10-innovative-practices-in-cities-across-europe/>

The museum currently has over 30 above-ground facilities, a complex of underground tourist routes with a total length of almost 10 km, and two educational outdoor parks. For its work in the field of preserving and promoting heritage (tangible and intangible), the Museum has received a number of awards, including: the title of the Monument of the History of the Republic of Poland, the European Heritage Award - Europa Nostra 2019 for the Queen Luiza Adit in Zabrze, the Sybilla 2016, 2017 awards, 2018, award named after Wojciech Korfanty.

The museum also focuses on scientific, research and popularization activities devoted to the cult of Saint. Barbara and mining brass bands.

In 2018, thanks to the efforts of the Museum, which coordinated the activities, Barbórka was included on the National List of Intangible Cultural Heritage. In 2023, the cultural traditions of mining brass bands from Upper Silesia were included on the same list. The institution is one of the leading institutions dealing with the protection and promotion of intangible cultural heritage. The main mission of the Museum will remain unchanged, however, in the light of the investment plans and the results of the completed work of the Museum, the offer has been further defined and diversified, making it diverse and addressed to different groups of recipients. The entire Museum facilities (together with the building at 3 Maja 19 and the Carnall Zone of the Queen Luiza Adit) constitute a unique complex of facilities presenting 200 years of post-mining heritage, the protection and promotion of which is the statutory axis of the Museum's activity. In addition to caring for the post-mining material heritage, one of the most important manifestations of the institution's activities is the care for the preservation of the intangible heritage of mining culture, the protection of which the Museum has undertaken, among others. by digitizing the above-mentioned resources.

In the era of the Green Deal and the closure of hard coal mines, the activities of the Museum seem necessary to preserve the above-mentioned. heritage. In March 2024, a joint application by Poland, Austria and Luxembourg was submitted to the UNESCO Secretariat in Paris for inclusion on the Representative List of the Intangible Heritage of Humanity - St. Mary's Basilica and mining traditions.

In the situation of restructuring of the mining industry, current socio-economic changes, preserving the Silesian mining heritage for future generations and popularizing the Silesian mining heritage, building conscious recipients and guardians of this heritage, becomes a key task for the Museum. The museum manages two unique post-industrial complexes - the Guido Mine and the Queen Luiza Adit. Extremely rich underground infrastructure, unparalleled anywhere in the world (including over 10 km of routes in underground coal mines with constantly operating machines and the longest underground runoff in Europe) and above-ground infrastructure (over 30 facilities in 4 locations in the city, including the unique Carnall Zone and two outdoor theme parks - Park 12C and Military Technology Park) are the base for conducting extensive tourist activities. The museum actively cooperates with various institutions in Poland and abroad. It develops international cooperation within the European Network of Coal Mining Museums - the Zabrze facility was one of the founders of the network. The museum takes part in the exchange of experiences and good practices with other post-mining regions of Europe. As part of international exchanges, both full-time employees of the institution and guides can learn "from the inside" other objects related to industrial heritage throughout Europe - including Great Britain, Czech Republic, Germany and Belgium. The Museum, as a member of the provincial Trail of Technical Monuments, takes an active part in the development of the Trail (from 2020 as the Trail Operator), and with the status of one of the four Technology Stars, it is a model and example of good practices for other facilities of this type in the province. Stars of Technology are anchor points of the Technical Monuments Trail. Here, the customer can expect the highest quality and variety of services as well as high substantive value. It is also a member – and one of the Anchor Points – of the European Route of Industrial Heritage (ERIH).

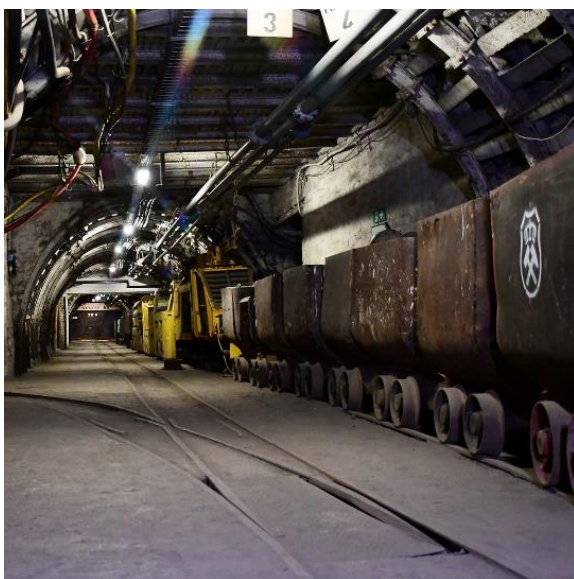
The museum is associated within the **Silesian Cluster of Culture, Tourism and Recreation** (which it currently manages) together with other entities providing services in the field of tourism, culture and recreation (including cultural institutions, museums, associations), in cooperation with the tourism-related services industry, advisory services, companies operating in the field of events, promotion and marketing, as well as the R&D sphere, business environment institutions and universities. This cooperation is based on the transfer of knowledge, technology and innovative solutions of Cluster members. The Silesian Cluster of Culture, Tourism and Recreation was established in 2013 as

part of a project co-financed by the European Union from the European Regional Development Fund under the Regional Operational Program of the Silesian Voivodeship for 2007-2013. After 10 years of activity, the current formula of activities has exhausted the previously identified areas and no longer brings the expected results. Therefore, it became necessary to redefine priorities, change the approach and formula of activities, with emphasis on technological changes, modern multimedia and the Virtual Reality area. Therefore, it is necessary to strategically involve entities and elements of creative industries in cooperation within the cluster and the development and implementation of new products and services in line with current trends. Given the developed solutions, cultural and tourist products and content will cross the borders of the region and country, which will contribute to the export of values, mainly cultural ones, bringing prestige and income. At the same time, they will attract creative professionals, which will influence the development of local communities, culture and infrastructure. The first and immediate planned project is an interactive multimedia project combining the past of industrial areas with their green heritage and future "Fragments of the Past". The project includes the production of a video, along with an interactive installation, showing the transformation of industrial space (based on a digitized library). with a futuristic vision of how this space will be developed in the future. An element of the installation will be a VR game presenting the fate of a boy who, while exploring a scientific laboratory located in a building converted from a mine infrastructure, comes across an invention that takes him back in time. Now, to return, he must solve several puzzles throughout the complex, all the while having insight into how the mine area from the past will change in the future. Both the past and future infrastructure design will be created from laser scans collected by the digitization team.

Coal Mining Museum, PL – Business competences supporting activities:

The Coal Mining Museum provided the job-growth activities by several projects, with a flagship called **"I have an idea - I have a business"**. The project is part of the systemic solutions within Just Transition strategies for Silesian region in Poland. Until mid-2026 this project will aim to acquire new or increase entrepreneurial competences, start and run a business for at least 12 months, by persons at risk of planned dismissal from work or dismissed in the period after May 28, 2021, i.e. after the date of signing the Social Agreement regarding the transformation of the hard coal mining sector and selected transformation processes of the province Silesia. The implemented package of activities includes career counseling, training in the basics of entrepreneurship, business consulting - assistance in preparing business plans, non-repayable financial support for starting a business in the implementation period from May 2024 to June 2026. In total 45 new micro-enterprises will be established and operated in the area covered by the project, with emphasis on communes affected by the mining transformation process and losing their social functions.

Coal Mining Museum, PL – Green policies (existing experience in the consortium):



The museum, as part of the **Queen Luiza Adit complex and the Guido Mine complex**, manages 30 buildings (most of them are historic buildings) along with their parking infrastructure and terrain, 2 large theme parks, 2 outdoor areas and 2 mining plants, in which more than 10 kilometers of workings (4 mine shafts, underground machinery, energy-intensive technical infrastructure for operation, etc.). The museum plans to expand the C12 park and create a modern demonstration infrastructure related to **renewable energy sources and green-blue infrastructure**, which will be used to conduct educational activities in cooperation with associations conducting educational activities, vocational and technical schools, and universities. A very important element of the activities is the cooperation already implemented and planned to a greater extent - with

the CCIs. Ecological education in the field of energy in conjunction with business partners operating in the industry (energy cluster) and the preparation of demonstrative, modern solutions in this area based on the facility's infrastructure will enable the creation of an innovative space for ecological education.



As part of the synergy of the above-mentioned activities with the project, the space of the former [Coal Mine KWK Makoszowy is planned to be revitalized](#). According to the local plans, this space will soon be under the management of the Coal Mining Museum in Zabrze - with a clear strategy towards accommodating a **Creative HUB** there, reinforcing cooperation with creative industries and supporting culture-led development.

Retention

The rational management of the coal mine water captures the treatment for use as a retention reservoir and for economic purposes. Currently, in the first stage, a reservoir has been built and supplies a fire



protection (retention) reservoir and constitutes a water resource for economic purposes. In the second stage of the Guido Mine, it is planned to build a system for pumping mine water to the surface and use it for the needs of a hostel, catering, employee baths and tourist service buildings. At the same time, the project "Elimination of hazards and harmful emissions generated by the historic mining excavation of the Main Heritage Adit within the City of Zabrze - Stage I" was co-financed by the National Fund for Environmental Protection and Water Management under priority program No. 2.4 "Rational waste management and protection of the earth's surface Reducing nuisance resulting from mineral extraction. It concerned the protection of the surface against the occurrence of sinkholes and the protection of the historic excavation against threats resulting from these shallow post-mining voids. The aim is to protect heritage at risk and

eliminate the threat this heritage poses on the earth. Currently, stage 2 of work is being prepared. Shallow voids near the GKSD have been located and will be strengthened to prevent sinkholes.

“Green Mine” project (initiated in 2019, completion by 2026)

The aim of the project is to implement and carry out investments that will increase the energy efficiency of the construction and mining infrastructure, devices, installations and processes in the entire tourist complex. This project is a multi-area activity that, apart from energy aspects, comprehensively solves the issues of managing other media (gas and system heat) as well as issues of regulating water management, which are of particular importance from the point of view of effective management, counteracting and limiting negative climate changes. In particular, the project will involve the construction, expansion, purchase, and installation of infrastructure for the generation, distribution and storage of electricity and heat from renewable energy sources, elimination of the causes and effects of the deterioration of natural water conditions by slowing down the outflow and minimizing the effects of drought - construction of retention reservoirs and building systemic solutions in the field of blue and green infrastructure. The investment will allow for the regulation and optimization of business costs in all facilities of the institution, both construction - surface and underground historic mining excavations in the following fields, power infrastructure mainly in the field of replacement and modernization of electrical devices and installations, construction infrastructure mainly in the field of thermal modernization and ventilation systems in facilities, energy generation and distribution systems, replacement of existing obsolete heating systems, heat pumps along with the implementation of media supervision systems, lighting and compressed air systems, ventilation and air conditioning systems, the use of renewable energy sources generating electricity.

Renewable energy - photovoltaic panels



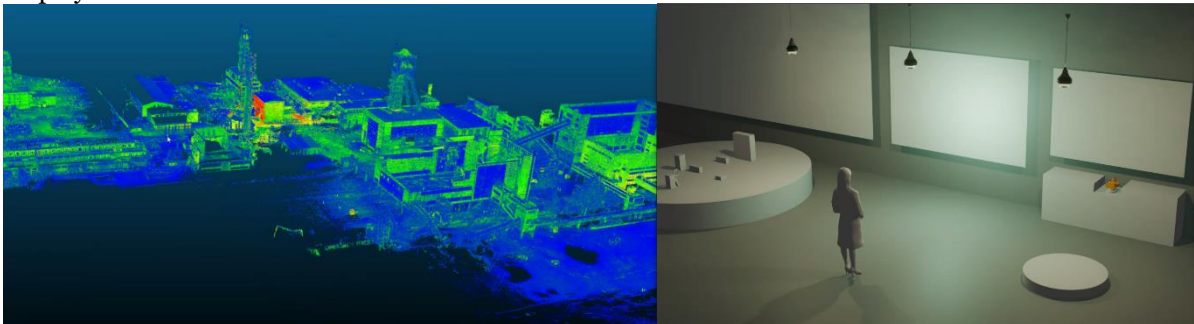
Currently, panels are already installed on 6 facilities under strict supervision of the Conservator of Monuments. In stage 2, they will be installed on another three buildings, while the carports will be placed in a large parking lot at the Guido Mine in Zabrze. Additionally, 2 heat pumps heating the air entering the adit are an element of ecological circulation. It can also function as a pump that ecologically cools the building - with air cooled from the workings. One such pump is already installed; the second one is

planned for implementation in 2024.

Main post-industrial site of the gamification activities of the project in Silesia, PL

"Piekary KWK Hard Coal Mine - heritage of the future":

This activity involves preparing, together with creative entities: a mock-up, pre-rendered 3D visualization, mapping, point cloud visualization, and interactive visualization. Visitors to the exhibition will be able to immerse themselves in the past by viewing a model with mapping of an archived mine (made based on a laser scan) watching a narrative video generated in 3D, and watching a clear cloud displayed on the screens.



Early 3D scanning of KWK Piekary and interactive exhibition room – by Coal Mining Museum in Zabrze, Poland, 2023

Visitors can preview this area's future - literally looking into it in VR goggles. To remove the barrier for people unable to use VR, the content would also be displayed to some extent on the screen on the right. Basic goals: collecting qualitative interviews from the target group who will want to contribute to the debate on the transformation of post-industrial areas, presentation of the results of scanning of the Piekary KWK mine, development of a method for processing point clouds into mesh objects, implementation of environmental photographs as a texture source, use of photographic materials in the construction of exhibition elements, research the use of the optimal presentation platform for content, use of laser scanning, voice archive, and field photographs collected during the scanning process, presentation of the results of digitalization of post-mining areas abroad.