

SYLWIA JAROSŁAWSKA-SOBÓR¹, ROBERT HILDEBRANDT²

Standards and mechanisms for the management of mining heritage sites. Coal Heritage project research findings

Introduction

Industrial heritage refers to the physical remnants and intangible legacy of past industrial activities. It highlights the cultural, technological, and historical significance of industrial development and its impact on communities. The understanding of industrial heritage consists not only of the areas of direct industrial production (heritage in the strict sense), but also of the entire technical and social infrastructure that surrounds them (heritage in the broad sense) (Kronenberg 2008).

Coal mining heritage encompasses both the tangible and intangible legacies of coal mining activities. It includes geological features called geoheritage (UNESCO 2019; Nita and Myga-Piątek 2014), such as mine structures and natural formations (Jakubowski 2004; Ihnatowicz et al. 2011), and industrial heritage involving tangible and intangible assets. Tangible assets primarily relate to the mining equipment and infrastructure, but also historical workers' settlements as examples of post-industrial space identifiers. Intangible heritage reflects

✉ Corresponding Author: Sylwia Jarosławska-Sobór; e-mail: sjaroslawska@gig.eu

¹ Central Mining Institute, Katowice, Poland; ORCID iD: 0000-0003-0920-6518; e-mail: sjaroslawska@gig.eu

² Central Mining Institute, Katowice, Poland; ORCID iD: 0000-0001-5700-166X; e-mail: rhildebrandt@gig.eu



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historical, social, and cultural developments tied to coal mining, offering insights into local and regional histories, labor practices, and social life of mining communities (Skaf 2016).

Industrial heritage objects are important in many dimensions: technical, historical, artistic, architectural, scientific, and cultural. They are the basis of local identity and are important for economic change. The specific features of the mining heritage give it the potential to become a tourist attraction in relevant areas, and this can offer a way to preserve it and pass it on to future generations (Boente et al. 2024). Mining heritage sites have been recognized for their cultural significance and have undergone transformations to promote tourism and education, emphasizing the importance of balancing heritage preservation with tourist development goals (Conlin 2014; Tost et al. 2021). The relationship between mining heritage and tourism should take into account the complexities and challenges of transforming former mining sites into tourist attractions. Authenticity and effective heritage interpretation in such endeavors are crucial for a successful project. The holistic approaches are essential to show visitors the links and processes involved as well as the material remnants and artefacts (Jelen 2018). But despite the growing popularity and importance of industrial heritage, it still is treated as “second-class heritage in the public consciousness” (Hajduga 2016).

In the literature, it is emphasized that there may be different approaches to understanding the concept of management of heritage sites. G. Ashworth (Ashworth 2015) calls it “the heritage paradigm”, emphasizing that the protection paradigm has transformed into a conservation paradigm, in which more emphasis is placed on the protection of entire cultural landscapes and emphasizing the purpose of preserving the monument and the function it has or will perform in the future. Other authors call it cultural heritage management, paying attention mainly to the process of using available resources, leading to the achievement of set goals (Gaweł et al. 2016). Thereby, various aspects should be taken into account in the management of cultural heritage resources, both those related to their preservation as museum objects and aspects related to the adaptation of post-mining facilities for business, cultural, social, and residential purposes. Prominent examples include the Zollverein Coal Mine Industrial Complex in Germany (<https://www.zollverein.de/>), the Nord-Pas de Calais Mining Basin in France (<https://www.chm-lewarde.com/>) or the Zabrze Mining Museum in Poland (<https://kopalniaguido.pl>), showcasing successful preservation and tourism-driven revitalization efforts (Szromek 2021).

On the other hand, monument protection authorities are not always able to maintain all such objects, and the process of making decisions for or against the preservation of a given object is based not only on economic criteria. Therefore, in the management of mining heritage, various issues should be analyzed, existing standards and local needs to consider both preservation and community engagement.

In 2023, the International Organization for Standardization (ISO) introduced the ISO 24419-1:2023 standard, titled “Mine closure and reclamation. Managing mining legacies. Part 1: Requirements and recommendations”, which provides a comprehensive framework for managing mining legacies, emphasizing planning, implementation, stewardship,

performance, and reporting. It is particularly pertinent for governments and the mining industry, outlining best practices for the closure and reclamation of mining sites to achieve acceptable outcomes (Swedish Institute for Standards 2023). The International Council on Mining and Metals (ICMM) Mining Principles outline performance expectations for responsible mining practices, including the conservation of biodiversity and integrated land-use planning. These principles emphasize the importance of not exploring or developing new mines in World Heritage sites and respecting legally designated protected areas. They also advocate for assessing and addressing risks to biodiversity through the implementation of the mitigation hierarchy, aiming for no-net-loss of biodiversity (ICMM 2022). The Mining Heritage Places Assessment Manual (Pearson and McGowan 2000) provides guidelines for assessing the heritage significance of mining sites. This manual offers a framework for recording and analyzing mining places, aiding in the development of management strategies that consider both preservation and community engagement.

The adoption of international standards, such as ISO, and ICMM, offers a robust framework for managing mining legacies, ensuring their sustainable conservation for future generations. To enhance mining heritage tourism marketing, innovative approaches for managing and promoting mining heritage sites, like digital tools, VR, or AI, should be considered (Herman 2020; Bonacchi 2021; Cameron 2021; Adit and Smriti 2024).

Postmining sites offering impressive infrastructure that could potentially serve non-mining purposes. However, the reality is that a vast majority of these facilities are abandoned postmining operations. It has been estimated at one million sites worldwide, covering an area of nearly 70,000 km (Venkateswarlu 2016), presenting a substantial opportunity for the repurposing of mining heritage into diverse sustainable uses (de Lange et al. 2018; Naramski et al. 2022; Rui Li et al. 2024). Despite the potential benefits, the transition process is fraught with various hazards and risks at environmental, technical, and social levels (Worlanyo and Jiangfeng 2021), so comprehensive risk analyses to navigate the complexities of mining heritage reuse effectively are vital (Wei et al. 2022; Ronyastra et al. 2023; Guo et al. 2024).

These sites serve as reminders of industrial advancements and the socio-economic transformations that have shaped regions across Europe. Effective management of postmining sites necessitates the implementation of individual approaches and robust mechanisms to ensure their conservation and sustainable utilization.

1. Methodology

The article presents the chosen results of the research carried out by the Central Mining Institute – National Research Institute (GIG-PIB) within the project “Coal Heritage: Conservation and promotion of the Coal Mining Heritage as the EU’s cultural legacy”, financed by the Coal and Steel Research Fund Accompanying Measures.

The GIG-PIB research, implemented in 2024, aims to identify standards and mechanisms for the management of heritage sites. The research outputs were the basis for

the development of the methodology for the creation of inventory processes and managing the mine's movable and immovable property. The analysis of the methodology was an expert assessment, containing two methods: In-Depth Interviews, using the CAWI technique (CAWI-IDI), and Focus Group Interview (FGI). Both the CAWI-IDI Questionnaire and the FGI Scenario focus on the essential aspects of the inventory processes and managing the mine's movable and immovable property. Research methods were deliberately selected to ensure a comprehensive, multi-perspective understanding of the complex issues surrounding mining heritage management. CAWI-IDI led to obtaining individual, detailed, and expert-level insights from international professionals experienced in inventorying and managing mining heritage. FGI generates interactive discussion and consensus-building among experts from both regional (Polish) and international backgrounds. Together, both methods fulfill the principle of comprehensiveness. Their combination ensured a holistic and robust understanding of the standards, mechanisms, and challenges in managing mining heritage.

A survey was designed for 15 CAWI-IDI experts (international) and for 2 FGI, with the participation of 14 experts, in two groups – 7 international experts and 7 Polish experts (regional). In qualitative research, 12–20 in-depth interviews are typically sufficient to achieve thematic saturation, meaning that new interviews no longer generate significantly new insights. The 15 interviews in this study allowed identifying recurring patterns and core challenges across multiple contexts. The Coal Heritage study deliberately targeted 15 high-level experts for the CAWI-IDI based on the principle of purposeful sampling commonly used in qualitative research. The study prioritized experience and specialization of knowledge. Each expert was selected based on their substantial professional experience in the field of mining and industrial heritage (e.g., mining museums, heritage institutions). The 15 experts represented diverse geographic and institutional backgrounds, ensuring a wide coverage of perspectives while maintaining analytical depth. All FGI experts have vast experience in the field of mining and industrial heritage (e.g., The International Committee for the Conservation of the Industrial Heritage TICCIH, European Federation of Museums and Tourist Railways FEDECRAIL, Provincial Conservator of Monuments, managers in mining museums, Durham Miners Association). Most of the IDI experts have relevant experience in the inventory of mining assets.

The technique used to analyze the transcripts was content analysis. Content analysis is an objective research method used to analyze text, images, or other qualitative materials (Babbie 2021). Its goal is to systematically examine content to identify recurring patterns, categories, or keywords. The obtained data were interpreted in the context of the research questions posed.

2. Research findings

2.1. Key CAWI-IDI findings

As key challenges in managing mining heritage, CAWI experts indicated problems related to financing and support for mining heritage projects and threats related to the degradation of historic mine buildings. As “other”, they also indicated cataloguing objects and collecting memories, difficulties of the private sites of mining buildings, value of post-mining areas for development activities, and financing.

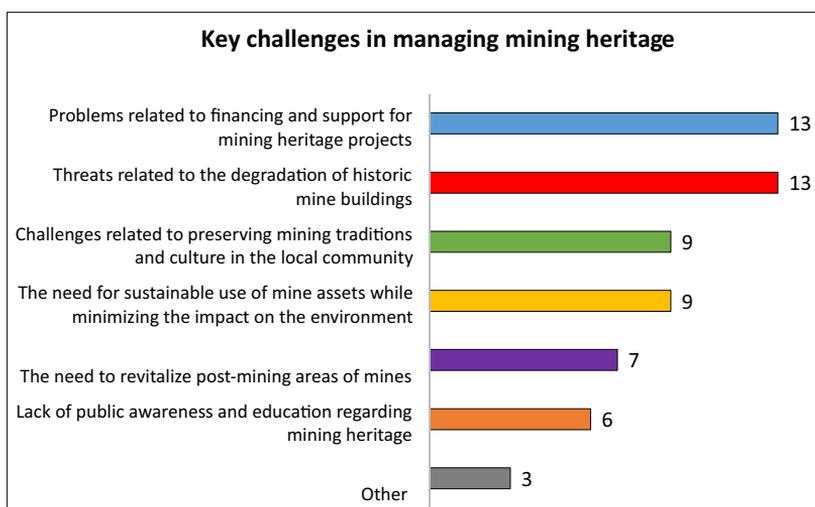


Fig. 1. Key challenges in managing mining heritage [N = 15], self-reported data

Rys. 1. Najważniejsze wyzwania związane z zarządzaniem dziedzictwem górniczym [N = 15], dane zgłoszone samodzielnie

The optimal model for maintaining industrial heritage facilities is often a hybrid approach that integrates elements from various models to leverage their respective strengths. For instance, Public-Private Partnerships (PPPs) can effectively combine the public sector’s commitment to heritage preservation with the private sector’s efficiency and innovation. State and local government involvement can ensure legal protection and community engagement, while social organizations can bring dedicated expertise and flexibility to the table.

Within the scope of financial maintenance of mining heritage sites, experts indicated the following funds that they consider likely and appropriate to finance the maintenance of industrial heritage sites:

- ◆ public funds provided by government institutions,
- ◆ European funds for industrial heritage projects,

- ◆ income generated from the provision of tourism and educational services at heritage sites,
- ◆ grants and subsidies offered by local governments,
- ◆ private investment and corporate sponsorship.

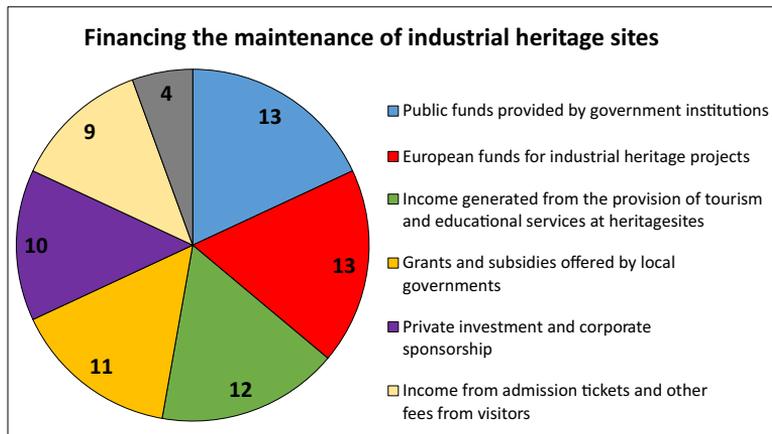


Fig. 2. Financing the maintenance of industrial heritage sites [N = 15], self-reported data

Rys. 2. Finansowanie utrzymania obiektów dziedzictwa przemysłowego [N = 15], dane zgłoszone samodzielnie

All CAWI-IDI experts confirmed that there is no single model of maintenance and financing of mining heritage that should apply to mining heritage facilities. In each case, the situation should be considered individually, depending on the state of resources, the situation of the region, and also on the social attitude. Various models: state, local government, social, private, and PPs offer different advantages and face unique challenges. An optimal approach often involves a hybrid model that combines elements from multiple strategies. Table 1 presents the advantages and challenges of all types of models for maintaining industrial heritage facilities.

2.2. Summary of the CAWI-IDI experts' answers to the question on main challenges in the management of the mine's resources as cultural heritage

The CAWI-IDI experts outline numerous challenges associated with the inventory and management of mining resources as cultural heritage. Some of them are:

- ◆ Financial and resource constraints. The process of inventorying and managing mining heritage requires significant financial resources for research, documentation, maintenance, restoration, and safety measures. Limited funding often hampers these efforts.

Table 1. Optimal models for maintaining industrial heritage facilities, self-reported data

Tabela 1. Optymalne modele utrzymania obiektów dziedzictwa przemysłowego, dane zgłoszone samodzielnie

	Advantages	Challenges
State ownership	<p>Stability and funding: state-managed models benefit from consistent funding and long-term planning. Governments can allocate public funds, ensuring that resources are available for ongoing maintenance and preservation.</p> <p>Legal protection: government entities have access to legal frameworks that can enforce the protection and conservation of heritage sites, providing a robust safeguard against neglect or misuse.</p>	<p>Bureaucracy: administrative processes can be slow and cumbersome, delaying necessary actions and adaptations.</p> <p>Limited flexibility: state management can lack the flexibility to respond to local needs and innovative approaches, often adhering to rigid protocols.</p>
Local government management	<p>Local control: local governments are intimately familiar with the heritage and significance of industrial sites within their jurisdiction. This local control can lead to more context-sensitive and effective management.</p> <p>Community engagement: local authorities can foster greater community involvement, leverage local knowledge, and promote a sense of ownership and pride among residents.</p>	<p>Resource constraints: local governments may struggle with limited financial and technical resources, hindering their ability to maintain and develop heritage sites effectively.</p> <p>Capacity issues: smaller municipalities might lack the necessary expertise and capacity to manage complex heritage projects.</p>
Social and community-based models	<p>Commitment and expertise: community organizations and NGOs often bring a high level of dedication and specialized knowledge to heritage preservation efforts.</p> <p>Flexibility and innovation: these groups can adopt more flexible and innovative approaches tailored to specific site needs and challenges.</p>	<p>Funding difficulties: reliance on donations and voluntary contributions can lead to financial instability, limiting the scope and sustainability of projects.</p> <p>Limited influence: community-based organizations may lack the political clout or resources to implement large-scale or long-term conservation measures.</p>
Private Sector Involvement	<p>Efficiency and resources: private sector actors can operate more efficiently and often bring significant financial resources to heritage projects.</p> <p>Entrepreneurial approaches: private management can introduce innovative and entrepreneurial solutions, potentially enhancing the site's commercial viability and visitor experience.</p>	<p>Profit motive: the primary focus on profitability can sometimes overshadow the preservation of cultural and historical values.</p> <p>Access restrictions: privatization might lead to restricted public access, undermining the community's connection to the heritage site.</p>
Public-Private Partnerships (PPPs)	<p>Combined resources: PPPs harness the strengths and resources of both public and private entities, making it possible to tackle large-scale projects with a balanced approach.</p> <p>Risk sharing: these partnerships distribute the financial and operational risks between the public and private sectors, reducing the burden on any single party.</p>	<p>Coordination and management: effective PPPs require careful coordination and alignment of goals between the partners, which can be complex and time-consuming.</p> <p>Potential conflicts: differences in priorities and objectives between public and private partners can lead to conflicts, requiring robust negotiation and conflict resolution mechanisms.</p>

- ◆ Difficulty in identification. Some mining sites are abandoned or damaged, making their identification and documentation challenging. Accurate field research and archival sources are crucial but often difficult to access or incomplete.
- ◆ Large and diverse areas. Mines often encompass extensive and varied areas, including underground galleries, above-ground facilities, machinery, tools, and associated infrastructure. Fully documenting these elements can be time-consuming and require specialized knowledge in history, archaeology, geology, and engineering. Also, historical cataloguing of mining activities may be incomplete or scattered, adding complexity to the task of cataloging mining heritage accurately. The preservation of oral histories is also challenging due to fading memories.
- ◆ State of preservation. Many historic mines are in poor condition due to disease, natural deterioration, and lack of maintenance. Rapid decay necessitates immediate protective measures to prevent further deterioration.
- ◆ Legal and administrative challenges. Obtaining necessary permits for conservation and restoration measures can be time-consuming and complicated, delaying crucial preservation work.
- ◆ Environmental degradation and safety concerns. Abandoned mines pose considerable safety risks due to the potential collapse of old shafts and other structures. Ensuring the safety of these sites involves substantial investment in containment and monitoring, adding to the complexity of preserving mining heritage. Moreover, the instability of these structures can hinder their transformation into tourist or educational sites without significant intervention.
- ◆ Local communities' engagement with and raising awareness. Engaging residents in decision-making processes and project implementation is essential for sustainability, but can be difficult to achieve, especially if the community has negative associations with the mining industry.

2.3. Key FGI findings

This part of the analysis covers two Focus Group Interview (FGI) discussions: online FGI with the participation of international experts and face-to-face FGI with regional experts. The FGIs involved experts who were asked identical questions. The results from both FGIs confirmed the homogeneity of assessments and statements in the cognitive areas explored, indicating minimal impact from the differing formats of the discussions. The key findings from both FGIs are presented in Table 2.

Table 2. Key findings from FGIs

Tabela 2. Najważniejsze wnioski z grup fokusowych

Regional FGI	International FGI
The importance of financial support. The implementation of revitalization projects often depends on obtaining external funds. Without adequate financial support, both from local governments and other institutions, the implementation of ambitious revitalization projects is difficult to achieve. An example is the Ignacy Mine (Poland) ¹ , which needs external funds for revitalization to continue its educational and cultural mission.	Financial challenges. Mining heritage management faces numerous financial challenges, including a lack of sufficient resources to maintain and promote mining-related cultural heritage. The Durham Miners Gala (UK) ² , which is the largest event of its kind in Europe, is financed mainly by trade union contributions and individual contributions.
The importance of bottom-up initiatives in the protection of cultural heritage. Bottom-up initiatives, especially those undertaken by local communities and associations, play a key role in the protection and restoration of post-industrial heritage. Local communities often submit more applications for renovations than property owners.	The role of local communities. It is crucial to involve local communities, which can be transmitters of the history and values associated with mining heritage. Young teams of dynamic museum guides are replacing older generations of former miners.
Cross-sectoral partnerships. Effective management of mining heritage requires cooperation between various actors, including cities, cultural institutions, monument conservators, and universities. An example is the consortium in Zabrze, which involved many institutions in the process of revitalizing the Guido mine or the inscription of St. Barbara's Day in Poland on the list of intangible heritage.	Better governance in coal regions. Managing coal regions in transition is key to support a just transition, improving health and safety, and minimizing the environmental impact of coal mines.
The role of modern technologies in heritage documentation. Modern technologies, such as laser scanning, are invaluable in the process of inventory and documentation of post-industrial facilities. Thanks to them, it is possible to accurately preserve and record the technical and historical condition of these buildings.	Volunteer potential. Mining communities have a high potential for volunteering, which can be used to implement various programs to support mining heritage.

¹ <https://www.kopalniaignacy.pl/>.² <https://www.durhamminers.org/>.

2.4. Summary of the FGI experts' answers to the question on main challenges in the management of the mine's resources as cultural heritage

1. Management challenges. Effective management of mining heritage involves addressing several challenges, such as physical protection and financing. Many mining facilities are in poor condition and require comprehensive conservation and restoration efforts. This necessitates systematic technical reviews and long-term conservation plans. There is a critical need for financial resources from various sources, including national, regional, and local levels, EU funds, government programs, and private investors. Attractive business models and inter-sector cooperation are essential to attract investment.

2. Social dimensions of mining heritage. Experts highlighted the strong social bonds and unique cultural identities that have developed in mining communities. Traditions, customs, and everyday life in these communities are integral to the heritage. Public events, like the Durham Miners Gala in the UK, play a crucial role in maintaining these social dimensions by bringing communities together and reinforcing a shared sense of belonging and cultural continuity.
3. Economic impact. Despite the closure of many mines, mining heritage continues to influence regional economies. Experts discussed the importance of leveraging remaining resources and post-industrial areas for economic development. The heritage also offers potential for tourism development, which can contribute to economic revival if managed properly. This includes creating diversified tourist offers that respect and promote mining heritage.
4. Community and institutional roles. Museums and cultural institutions are pivotal in preserving and promoting mining heritage. These institutions serve as educational spaces and help transmit knowledge to younger generations. Local communities play a crucial role in heritage preservation. Initiatives led by these communities, such as those in Rybnik (Poland), demonstrate successful grassroots efforts in preserving mining heritage.
5. Public awareness and education. Increasing public awareness through educational programs is vital. Engaging young people and children can help instill pro-social attitudes towards heritage protection. Workshops, exhibitions, and cultural events can further promote mining heritage. Also important is tourism management. While tourism can boost regional economies, it requires careful management to ensure it contributes positively to the preservation of heritage. This involves creating sustainable and attractive tourism offers.
6. Technological development. Mining has historically driven technological innovation, and experts emphasized the importance of continuing this trend. Technologies developed in the mining sector can be applied to other areas, contributing to broader technological advancement.

The FGI discussions underscored the need for continued dialogue and action to preserve and promote mining heritage. Heritage is seen as an integral part of regional identity and a crucial element for future development. Experts called for a balanced approach to manage this heritage, involving cooperation among various stakeholders, comprehensive conservation efforts, adequate financing, public engagement, and sustainable tourism development.

3. Conclusions

On the basis of the CAWI IDI and FGI analysis, the following final conclusions were developed:

1. Historical and cultural significance of mining heritage. Mining heritage holds immense historical importance, encompassing both tangible (historic mines, machinery) and intangible elements (traditions, oral stories). This heritage is vital in understanding the evolution of societies and economies.
2. Social awareness. Preserving mining heritage necessitates broad social awareness. This includes recognizing miners' contributions to regional development and valuing mining heritage as an integral part of cultural identity. Building public awareness of the importance of mining heritage within the identity of local communities is a crucial process.
3. Economic impact. Even post-closure, mining heritage continues to influence regional economies. Properly leveraged, it can aid economic development through tourism and other heritage-related activities.
4. Hybrid models. Hybrid models are optimal for maintaining industrial heritage facilities and are often a hybrid approach that integrates elements from various models to leverage their respective strengths. The choice of model should be guided by the specific needs and conditions of each heritage site, ensuring a balanced approach that promotes both conservation and sustainable development.
5. Public participation. Active involvement of local communities in decision-making processes enhances the management of mining heritage. Public consultations and inclusive strategies are beneficial. Local community involvement is crucial. Grassroots efforts and community-based models show the potential for successful heritage preservation through local initiatives.
6. Comprehensive conservation efforts. Systematic and well-planned conservation efforts are needed to address the deterioration of historic mining facilities. This includes technical assessments and restoration initiatives.
7. Technological innovation. Mining has historically driven technological advancements. Continuing this tradition, modern technologies can play a significant role in heritage preservation and broader technological progress.
8. Sustainable development. Integrating mining heritage into sustainable development plans can enhance its value. This includes balancing heritage conservation with modern economic activities.

Effective management of mining heritage faces several challenges, including physical protection, conservation and financing. Many facilities require significant restoration efforts, demanding comprehensive technical reviews and long-term conservation plans. Adequate financial resources are critical. The conservation of historic mines and mining sites requires extensive resources and expertise. It is often difficult to manage the balancing act between the conservation of cultural heritage and the continuation of mining activities. Diverse funding sources, including national, regional, EU funds and private investments, are necessary to support conservation and heritage projects.

4. Recommendations

Maintaining industrial heritage facilities is a multifaceted challenge that requires a tailored approach, considering the specific context of each site. The choice of model should be guided by the specific needs and conditions of each heritage site, ensuring a balanced approach that promotes both conservation and sustainable development. Collaborative efforts that engage various stakeholders, like government entities, private companies, local communities, and NGOs, are key to achieving long-term preservation and economic viability for industrial heritage facilities.

Managing mining resources as cultural heritage is a multifaceted challenge requiring comprehensive strategies. These strategies must address technical, social, economic, and environmental aspects while fostering collaboration among various stakeholders, including local communities, cultural institutions, local authorities, and experts in related fields. Effective management hinges on overcoming these numerous challenges through coordinated efforts, adequate funding, technological innovation, and community engagement, ensuring that the rich cultural heritage of mining is preserved for future generations.

By operationalizing survey findings through targeted policy measures, multi-level cooperation and strategic investment, policymakers can ensure that mining heritage is not only preserved, but actively contributes to cultural vitality, social cohesion, and regional renewal.

Policymakers can embed industrial and mining heritage preservation into broader socio-economic plans, particularly in post-mining regions. The findings underscore that mining heritage contributes not only to cultural identity but also to economic regeneration. Leveraging this dual function allows policymakers to position heritage as an asset in regional development and just transition strategies. Many mining sites are deteriorated or pose safety risks. Policymakers can create legal frameworks that incentivize adaptive reuse of post-mining infrastructure for cultural, commercial, or educational purposes.

The research confirms that no one-size-fits-all approach exists for managing mining heritage. Policymakers should actively promote and facilitate hybrid governance models, combining state, local government, private sector, and community involvement.

Based on the findings of the Coal Heritage project survey, the following steps might be prioritized to ensure effective, sustainable management of mining heritage sites:

- ◆ Establish dedicated funding mechanisms. It concerns national and regional grant programs specifically for industrial and mining heritage, facilitates access to EU heritage, cohesion, and transition funds, and offers financial incentives (e.g., tax deductions, subsidies) for private and corporate contributions.
- ◆ Develop integrated heritage management plans. Incorporating mining heritage into regional and local development strategies, particularly in post-mining regions, is relevant.
- ◆ Promote Public-Private Partnerships (PPPs). This kind of cooperation enables frameworks that allow collaboration between public authorities, private investors, NGOs, and local communities.

- ◆ Legal and administrative procedures simplification. It should improve permitting processes for restoration, adaptation, and reuse of heritage sites.
- ◆ Foster local community involvement. It will be able to support bottom-up initiatives (e.g., microgrants for community heritage projects) and encourage volunteer programs and intergenerational activities to build social awareness.
- ◆ Invest in education and leverage modern technology. Supporting the use of VR/AR, digital archives, and developing interactive online platforms or apps for heritage tourism and education will boost all types of heritage management activities.

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STANDARDS AND MECHANISMS FOR THE MANAGEMENT OF MINING HERITAGE SITES. COAL HERITAGE PROJECT RESEARCH FINDINGS

Key words

mining, heritage, management, industrial legacy

Abstract

Coal mining heritage encompasses both the tangible and intangible legacies of coal mining activities. Industrial heritage objects are important in many dimensions: technical, historical, architectural, scientific, and cultural. Postmining sites serve as reminders of industrial advancements and the socio-economic transformations that have shaped regions across Europe. They are the basis of local identity and are important for economic change. On the other hand, monument protection authorities are not always able to maintain all such objects, and the process of making decisions for or against the preservation of a given object is based not only on economic criteria. Maintaining industrial heritage facilities is a multifaceted challenge that requires a tailored approach, considering the specific context of each site. Managing mining resources as cultural heritage is a multifaceted challenge requiring comprehensive strategies. These strategies must address technical, social, economic, and environmental aspects while fostering collaboration among various stakeholders, including local communities, cultural institutions, local authorities, and experts in related fields.

The article presents the chosen results of a survey carried out by the Central Mining Institute – National Research Institute (GIG-PIB) within the project “Coal Heritage: Conservation and promotion of the Coal Mining Heritage as the EU’s cultural legacy” financed by the Coal and Steel Research Fund Accompanying Measures. The discussion integrates key insights from experts’ comprehensive and consistent perspective on the challenges in the management of mining heritage.

STANDARDY I MECHANIZMY GOSPODAROWANIA OBIEKTAMI DZIEDZICTWA GÓRNICZEGO.
WYNIKI BADAŃ ZREALIZOWANYCH W RAMACH PROJEKTU COAL HERITAGE

Słowa kluczowe

górnictwo, dziedzictwo, zarządzanie, dziedzictwo przemysłowe

Streszczenie

Dziedzictwo górnictwa węgla kamiennego obejmuje zarówno materialne, jak i niematerialne dziedzictwo działalności górniczej. Obiekty dziedzictwa przemysłowego są ważne w wielu wymiarach: technicznym, historycznym, architektonicznym, naukowym i kulturowym. Tereny pogórnice przypominają o postępie przemysłowym i przemianach społeczno-gospodarczych, które ukształtowały regiony w całej Europie. Stanowią one podstawę lokalnej tożsamości i są ważne dla przemian gospodarczych. Z drugiej strony organy ochrony zabytków nie zawsze są w stanie utrzymać wszystkie takie obiekty, a proces podejmowania decyzji za ochroną danego obiektu albo przeciw niej opiera się nie tylko na kryteriach ekonomicznych. Utrzymanie obiektów dziedzictwa przemysłowego jest wieloaspektowym wyzwaniem, które wymaga indywidualnego podejścia, uwzględniającego specyficzny kontekst każdego obiektu. Zarządzanie zasobami górnictwem jako dziedzictwem kulturowym jest wieloaspektowym wyzwaniem wymagającym kompleksowych strategii. Strategie te muszą uwzględniać aspekty techniczne, społeczne, gospodarcze i środowiskowe, a jednocześnie wspierać współpracę między różnymi interesariuszami, w tym społecznościami lokalnymi, instytucjami kulturalnymi, władzami lokalnymi i ekspertami w pokrewnych dziedzinach.

W artykule przedstawiono wybrane wyniki badań ankietowych przeprowadzonych przez Główny Instytut Górnictwa – Państwowy Instytut Badawczy (GIG-PIB) w ramach projektu „Dziedzictwo węglowe: konserwacja i promocja dziedzictwa górnictwa węglowego jako dziedzictwa kulturowego UE”, finansowanego ze środków Funduszu Badawczego Węgla i Stali. Dyskusja integruje kluczowe spostrzeżenia ekspertów, dając kompleksowe i spójne spojrzenie na wyzwania związane z zarządzaniem dziedzictwem górniczym.