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Work Package 2 - Deliverable 2.4

Report on the Questionnaires and First Results on the Public Perception

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Summary

A key component of the CoalHeritage project is to measure the interest and opinions of various stakeholders involved in transitioning from hard-coal mining to greener energy sources. This deliverable presents a report on the analysis of public stakeholder engagement and involvement in the transformation, maintenance, and preservation of former coal mine sites. The report includes the methodology for developing a questionnaire to assess the awareness and perceptions of different stakeholder groups across the participating countries, as well as data analysis of the gathered results. The results on knowledge about coal mining heritage, perceptions of the most common and preferred land-use options after mining, and interest in supporting transition projects are segmented by different societal groups and age demographics among the identified stakeholders, providing insights into societal changes and transition assessments. The goal is to integrate a diverse pool of stakeholders into decision-making processes by understanding their expectations and requirements concerning post-mining and industrial heritage development, maintenance, and preservation, as well as determining their interest in future policies and identifying the most appropriate bodies to support transition projects.

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1. Context

The European Union countries are actively implementing plans to reduce carbon emissions in industries, particularly in electricity generation. Many of the coal mines operating in Europe are projected to shut down over the next twenty years. This transition poses the challenge of reimagining regions once dominated by industrial mining into appealing landscapes that foster future economic growth and employment opportunities. Each participating country in the project has a deep-rooted history in coal mining. However, the era of coal prosperity, marked by extensive development of mining infrastructure and facilities, has come to an end. Economic, environmental, and social factors compel governments to phase out their involvement in the coal industry.

The World Bank has actively participated globally in mine closure and coal region transition, offering technical and financial aid. In the publication "Managing Coal Mine Closure: Achieving a Just Transition for all" in 2018 experiences and recommendations were shared. Just transition, gaining attention due to the climate crisis, focuses on distributional, procedural, and restorative justice. Despite support from various reports, convincing key actors to prepare for this transition remains a challenge (World Bank Group, 2018; McCauley & Heffron, 2018).

Transforming former coal mining and industrial sites into hubs for new economic activities is a complex task, and comes with numerous challenges. To address these, the CoalHeritage initiative has been established as part of the Conservation and Promotion of Coal Mining Heritage as the EU's Cultural Legacy, under the RFCS (Research Fund for Coal and Steel) accompanying measures.

The primary objective of CoalHeritage is to create a strong interregional network dedicated to preserving and promoting coal-mining heritage in post-mining regions. This involves identifying, inventorying, and valorizing assets from selected coal mines. Based on these efforts, a comprehensive strategy for their conservation will be developed, incorporating best practices and outlining the necessary processes for declaring a coal mine as a national heritage site.

In this context, it was aimed to highlight the ongoing structural transformations associated with the coal phase-out across the involved countries. This includes examining the evolving legislative landscape and socio-economic strategies aimed at reactivating and transitioning post-mining areas. In this report, an analysis of public stakeholder engagement and involvement is conducted.

A crucial aspect of this process is understanding the risks and opportunities of post-mining locations. Ensuring open communication and engaging all stakeholders is essential to explore viable options for future land use. One of the pillars of the CoalHeritage project is to understand the level of interest and opinions from the diverse range of stakeholders and involved parties transitioning from hard-coal mining to greener energy sources. This report aims to demonstrate one strategy to address this task: developing a questionnaire to identify the awareness and perception of different stakeholder groups and analyze the results. Since each group has different interests, perceptions, and expectations about mining historical places, their acceptance and knowledge need to be evaluated accordingly.

Identifying stakeholder societal groups and ages will provide details on societal change and transition assessment. The goal is to contribute to the integration of local communities into decision-making processes by understanding their expectations and requirements concerning post-mining and industrial heritage development and preservation.

2. Report objectives

This report aims to understand the awareness of stakeholders regarding industrial heritage by developing a questionnaire to assess their knowledge on various aspects. These aspects include their understanding of the history of coal mining, their perception and interest in cultural heritage, acceptance of preservation measures, and responsibility for financial support measures. To achieve this objective, the following activities were carried out:

- Design and development of a public perception online-survey for multiple stakeholders that might be connected to the preservation and conservation of industrial coal heritage with the aim of assessing the expectations and interests of different stakeholders with specific goals to
    - understand societal changes and the importance of questioning youth and younger adults in terms of their identity.
    - obtain information about stakeholders' knowledge of coal mining history.
    - measure levels of acceptance for preservation measures.
    - identify public perception of industrial heritage sites and the responsibility of main protection authorities.
    - determine interest in future policies prioritizing transition projects.
- Data analysis and results of the questionnaire

3. Methodology

In order to assess the perception of multiple levels of stakeholders, a survey analysis across the participants regions of the project was employed. The identification of main interested stakeholders and their perception of the preservation and conservation of coal and associated industrial sites are vital for understanding the current needs and, therefore, to incorporate them to future developments plans for land use and transition projects on former mining sites. Figure 1 shows a detailed workflow by the steps towards the construction and strategic design of the online survey instrument and its execution upon the results. In this chapter, each of the steps will be explained and the instruments for the successful development of this report will be applied.

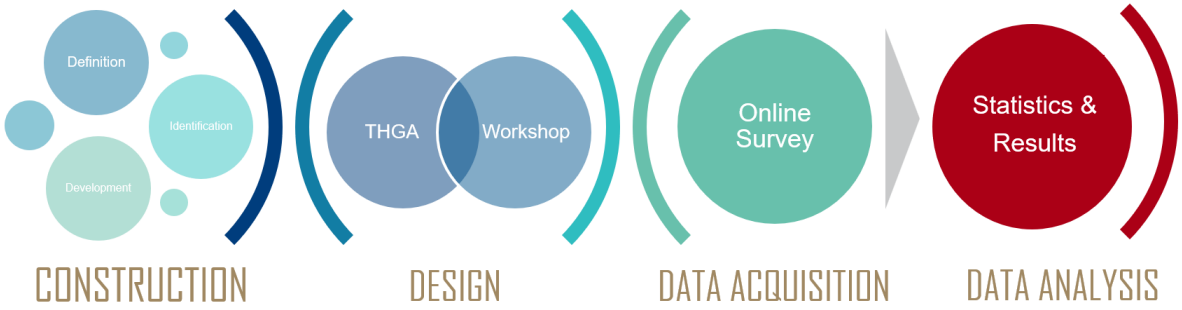

Figure 1. Schematic workflow for questionnaire execution on the stakeholder public awareness study in the CoalHeritage Project.

3.1 Survey construction

The main focus of the questionnaire lies on the understanding of the awareness and perception of different stakeholder groups surrounded by industrial former mine sites with current preservation and/or potential transformation plans. Therefore, for the construction of the questionnaire, the first step was to define a clear objective to ensure each question aligns with the main focuses of the survey, which include understanding the knowledge on the history of coal mining, their perception, interest in cultural heritage, acceptance of preservation measures and the financial support actions that needs to be taken into consideration for future land use development as well as supporting the current historic monument protection authorities and institutions.

3.2 Survey design

The survey was designed using a combination of single-choice, multiple choice, Likert scale, and open-ended questions to capture both quantitative and qualitative data as given in Table 1. Questions were developed based on previous research and tailored to assess different levels of awareness, interest and impact of measurements across different categories of stakeholders for the participant regions. Once the draft questionnaire was constructed, the questions' objectives, and details were reviewed and consulted by a selected group of experts from the Ruhr Area gathered at the Research Center of Post-Mining in Germany in a one-day workshop.

Table 1. Main categories of questions, objective and number of created questions.

Target Question	Description	# Questions
Region	Segment the respondents by country	1
Age	Does the perception change with age? Which group is more interested? Level of engagement	1
Stakeholder group	Identify interest of stakeholder group category and level of coverage and outreach	2
Knowledge on the history of coal mining	Level of knowledge of the history of coal mining with the aim of understanding the level of engagement	2
Knowledge on different preservation and transformation plans	Compare current preservation and transformation plans and determine the level of acceptance of other preservation measures.	2
Acceptance of preservation measures	Are the respondents aware of transition and preservation projects? What is the level of enrollment?	3
Financial support considerations	Who should be the responsible bodies of preserving former mine areas and heritage?	3
Policy focus adaptation	What is the interest on specific reactivation and transition policies?	2
Future-oriented possibilities	What kind of industry in areas associated with mining heritage can generate new jobs	1

3.3 Stakeholder analysis

Stakeholders are individuals and organizations actively involved in the development of a project, or those whose interests can be positively or negatively affected by the project's execution or successful completion (PMBOK, 1996). They can be individuals, groups, or organizations that may affect, be affected by, or perceive themselves to be affected by a project decision, activity or outcome (PMBOK, 2017).

The latter definition provides a broader approach to project management, encompassing any member of society. The goal is to identify anyone who may be affected by or interested in the project. The main stakeholders involved in transition and preservation projects related to coal mine heritage and industrial transformation can vary depending on the country, region, and context of the coal mine heritage sites. Active stakeholder engagement and collaboration among these various actors are crucial for the successful transition and preservation of these sites. For this survey, stakeholder categories were carefully analyzed to ensure a pluralistic, inclusive, and transparent perception and awareness gathering. Table 2 details these categories, which are divided into four main subgroups.

Table 2. Stakeholder groups expanded to the goals of the CoalHeritage Project

Government	Companies	Communities	Organizations
National government	Mining companies	Civil society	Labor Unions
Regional government	Power producing companies	Private investors	Academia & Research
Local government	Financing institutions	Public-private partnership	Environmental NGOs

Multinational institutions (European Commission / Directorate General)	Subcontractors/ Suppliers/ Service companies	Local and national media
	Local and national business organizations (e.g., chamber of commerce/trade)	

Government agencies: This includes segmented government bodies and international entities, such as the European Commission. National and local government agencies play a crucial role in developing policies, regulations, and funding mechanisms to support the transition and preservation of coal mine heritage sites. They provide the legal framework and financial resources necessary for conservation efforts.

Companies: As we move towards renewable energies and different methods of energy production, it is important to understand the perceptions not only from mining companies, but also the needs of power-producing companies regarding preservation and transition projects. Also, financial institutions and local businesses, including those in the tourism industry, can contribute to the preservation and sustainable use of coal mine heritage sites. They can develop tourism initiatives, visitor centers, and educational programs that promote the cultural and historical significance of these sites. Furthermore, trade unions and workers' associations representing coal miners have a stake in transition projects. They advocate for the rights and well-being of workers affected by the closure of coal mines and can be involved in discussions and negotiations related to job transitions and retraining programs.

Local communities: Local communities living in or near coal mine regions are key stakeholders in transition and preservation projects. Their engagement, participation, and input are essential for the success of these initiatives. Community involvement ensures that the preservation efforts align with local needs, aspirations, and cultural values. This category expands to include small investing groups. The interest in preservation and the creation of new jobs can be an influencing factor for various communities and partnerships.

Organizations and institutions: These include universities and research institutions, NGOs, and businesses with potential economic impacts on reactivation and preservation efforts. Academic and research institutions play a big role in studying and documenting coal mine heritage sites. They provide valuable insights, research findings, and expertise to inform preservation strategies and best practices. NGOs that are focused on cultural heritage preservation and environmental conservation may also be involved in coal mine heritage preservation projects. They can advocate for the protection of these sites, raise awareness, and provide technical assistance.

3.4 Workshop with stakeholders

In this task, the questions and strategy of the survey to apply were validated and discussed with stakeholders from the Ruhr Area in Germany. The participants came from different areas (national and local authorities, industry in the area, local society, students and scientific employees) representing the University of Applied Sciences Georg Agricola (THGA), Mining Museum in Bochum (DBM), Ruhr University of

Bochum (RUB), and the Business Metropole Ruhr (BMR). Details of the event activities and the participant institutions can be depicted in Figure 2. The day was structured in three sections: During introductory session, insights into the project's concept, specific plans, objectives, partner countries, and ongoing tasks for the RFCS Accompanying Measure European Project were shared. Then a working session was carried out, where attendees actively engaged in discussions about a draft questionnaire. Different groups contributed their opinions, suggestions, and comments, enhancing the questionnaire's accuracy and ensuring a comprehensive and realistic approach to survey opinions during the application phase. During the event, identified stakeholders were validated and categorized into groups such as local residents, business owners, government officials, and environmental groups. Each of these groups was further divided, and a final pool of stakeholders (Table 2) was defined for questions regarding stakeholder categorization.

Figure 2. Diagram of main stakeholder institutions and participants during the Expert Workshop organized by the Research Center of Post-Mining in Bochum, Germany.

The workshop not only contributed to the validation and design of the questionnaire, but also facilitated the development of an interregional network dedicated to conservation and preserving coal mining heritage on the WP5 of the project.

3.5 Online survey

After the workshop with diverse opinions and using state of the art aspects for survey design and questionnaire accomplishment, some strategies were adopted to design the online survey.

- **Structured sequence:** Arrange questions in a logical order, starting from general to specific in order to create a natural flow and avoid confusing respondents.

- **Sectioning:** Divide the questionnaire into sections based on themes (e.g., awareness, perception, financial support, among others).
- **Informed consent**: Include an introductory section explaining the purpose of the survey, ensuring informed consent.
- **Confidentiality assurance**: Assure respondents that their answers will be kept confidential and used only for the stated research purposes.
- **Limitations:** Potential biases, such as non-response bias, were acknowledged. The generalizability of findings is discussed, considering the sample size and demographic coverage.

The webpage EUSurvey has been used to conduct the analysis as it provides an ideal platform for dynamic questionnaire publication and development. The form can be embedded into a website (Figure 3), open in a pop-up, or be accessed through a unique URL, also with the possibility of being available in different 6 languages. The Stakeholder Awareness online survey, which presents a total of 17 questions, takes approximately 10 minutes to complete. The complete questionnaire is given in the Appendices of this report. The survey was distributed via email and social media platforms to reach a wide audience, specifically in the involved project countries (France, Germany, Greece, Poland and Slovenia). The data collection occurred over an eight-week period, with follow-up reminders sent to increase response rates.

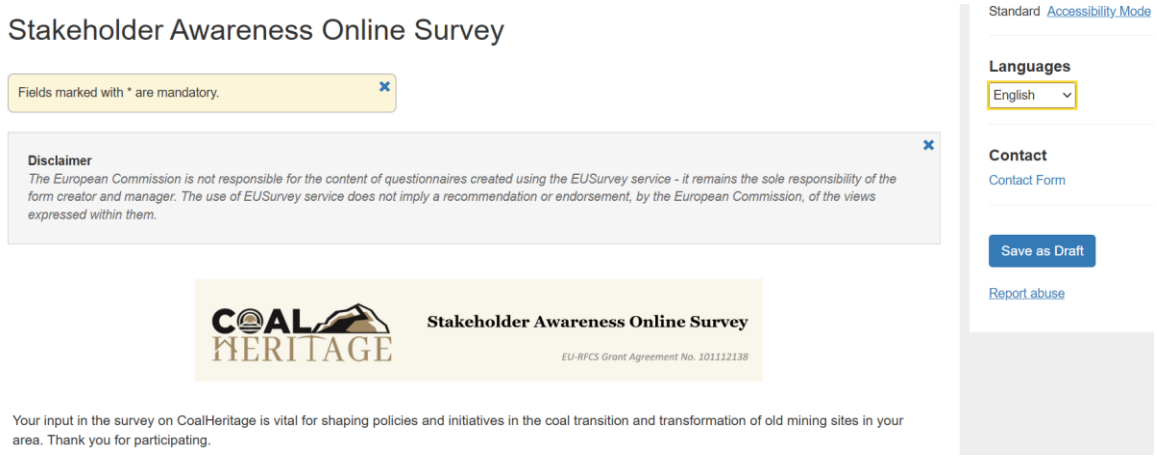

Figure 3. Overview of the online survey, the questionnaire format and the design on the webpage portal.

3.6 Sample size considerations

The Deliverable 2.4 needs to be understood as an exploratory tool to capture initial results of public perception regarding industrial heritage in the coal regions selected for this project. Given these conditions, the participant count reflects the timeline and exploratory nature of this initial study. It is important to note that studies specifically exploring stakeholder perceptions of coal heritage and related industrial transitions are rare. Therefore, the CoalHeritage project represents an important opportunity to establish foundational insights on stakeholder perceptions within this specialized context. By capturing initial public sentiment, this project lays essential groundwork that more comprehensive studies can build upon in the future.

Studies on public perception regarding mining, industrial heritage conservation, and related social expectations have employed diverse sample sizes and methodologies, typically tailored to the scope and objectives of each study. Research with similar objectives and limited timeframes, as noted in peer-reviewed literature, often operates with comparable sample sizes. For instance, environmental preference research demonstrates that reliable results can be achieved with as few as 25–30 respondents using rating protocols, or 10–15 respondents with comparative-choice methods (Stamps, 1992). Furthermore, exploratory factor analysis can yield robust findings with sample sizes below 50 when data are well-conditioned, challenging the conventional minimum of 50 (de Winter et al., 2009).

For context, Shahriar Khan et al. (2015) conducted a study on energy conservation that, despite a sample size under 100, successfully highlighted core environmental concerns and later served as a basis for larger follow-up research. In Poland, Bijańska et al. (2018) conducted a pilot study on coal mining perceptions with 267 university students, and a European study on CO_2 capture engaged 300 participants (Koukouzas et al., 2022). On a smaller scale, an online survey on COVID-19 perceptions in Europe and America gathered insights from 100 respondents (Saivarshine et al., 2020).

These examples illustrate that sample sizes in similar fields vary considerably based on study objectives, with larger samples for broad regional research and smaller samples for niche or pilot studies. In line with this precedent, our online survey captured initial public perception effectively 449 participants, laying a foundation for future, more comprehensive research.

4. Data analysis and results

This section provides a report on the results obtained from the online questionnaire. The responses were exported from the survey tool and subsequently processed using Excel's statistical analysis and graph creation tools. The responses were analysed and the percentages recorded for each of the questions, using cross tabulation process. For correct and efficient data processing, each question was analysed to extract from the answers received, common variables and responses were separated for segmentation analysis. In this report, the results of the survey will be presented through multiple visualization charts to answer the main target questions proposed in Table 1 during the design of the survey and to tackle the project specific objectives on stakeholder awareness. A total number of 449 participants took part in the survey and completed all questions across the participant countries (Figure 4).

Figure 4. Number and distribution of respondents in each project country on the stakeholder awareness online survey.

4.1 Level of engagement by age range and generation

The data by age demographic is shown in Figure 5 as a summary of the main results. In the most countries (Poland, Slovenia, Germany, and France), the majority of participants are in the age group of 41-60. This indicates that middle-aged individuals are more engaged or targeted in stakeholder surveys related to coal mine heritage and industrial transformation. The age group of 21-40 in Germany represent the mayoralty, and over 60 years are generally underrepresented across most countries. This suggests a potential gap in engagement with younger and older demographics, which could impact the diversity of perspectives in the other transition regions.

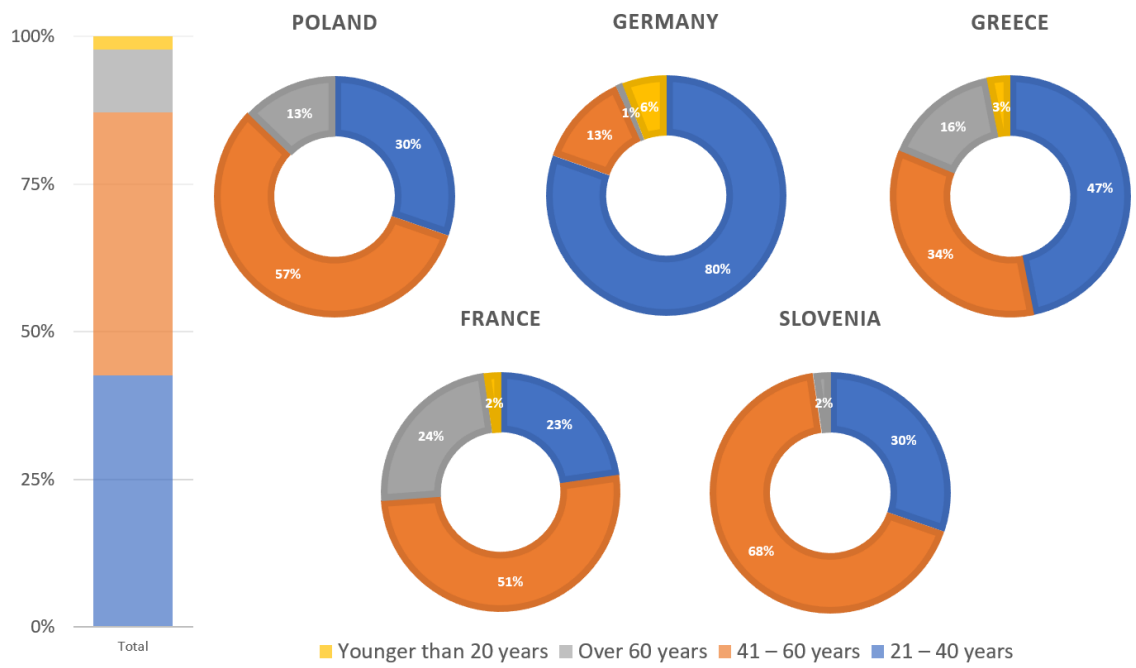

Figure 5. Age distribution chart of all participants in the stakeholder survey.

The predominance of the age group of 41-60 years highlights the need for tailored communication and engagement strategies that consider the perspectives and interests of this demographic. However, efforts should also be made to include younger than 20 years and older individuals to ensure a comprehensive understanding of stakeholder views.

4.2 Analysis of stakeholders group

The top chart of Figure 6 displays the distribution of different stakeholder groups involved in the survey across five countries: Slovenia, Poland, Greece, Germany, and France.

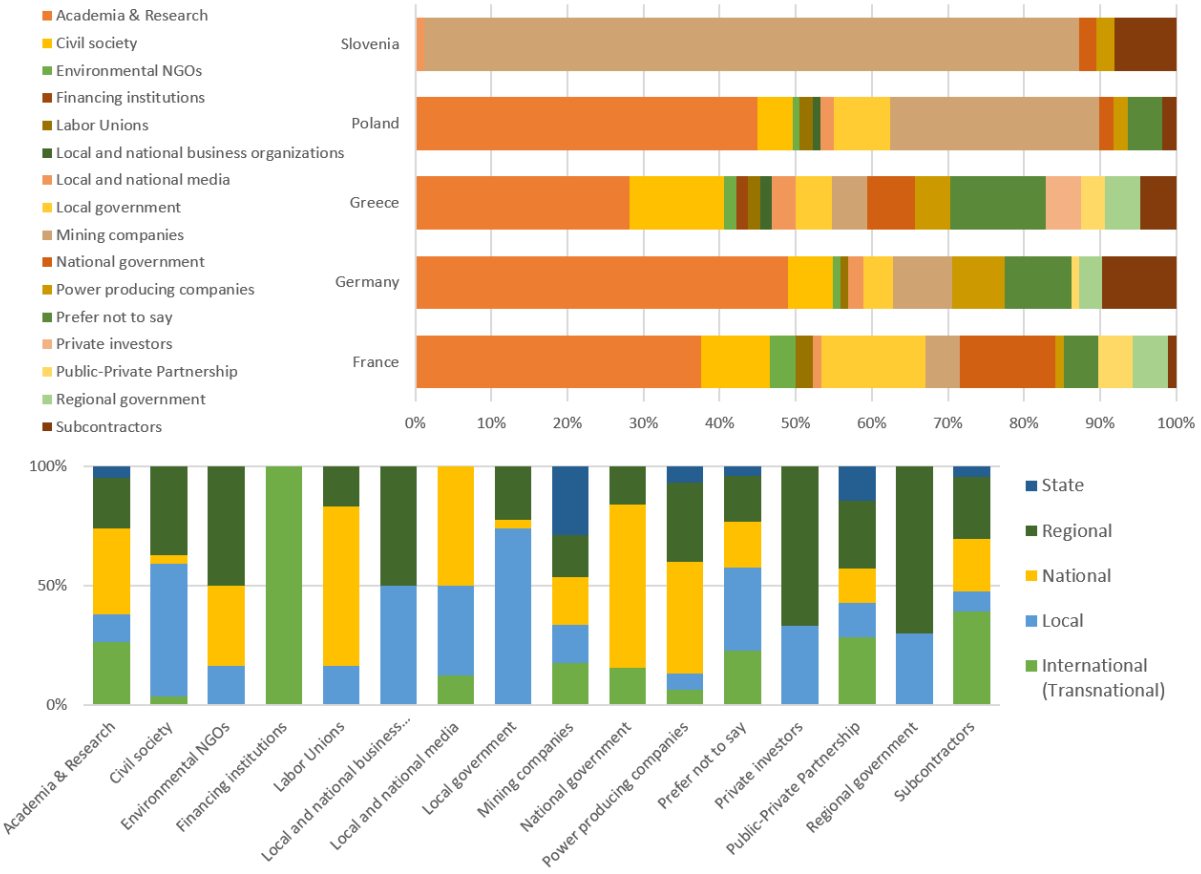

Figure 6. Distribution of respondents by stakeholder group in each country (top) and stakeholder distribution and coverage (bottom)

Slovenia:

- The stakeholder group with the highest representation is mining companies.
- Subcontractors are also significantly represented, followed by power producing companies and the national government in smaller proportions.

Poland:

- Academia & research dominates stakeholder representation.
- Local government and mining companies also have a notable presence.
- Environmental NGOs and financing institutions are less involved.

Greece:

- The country shows a diverse distribution, with a notable presence of academia & research, civil society, local government, environmental NGOs, and power producing companies. Some respondents remain also on the preferred not to say category.

Germany:

- The country has a relatively balanced representation of different stakeholders, with notable contributions from academia & research, subcontractors, and mining companies. Civil society and local government are also significantly represented as well as some participants under prefer not to say category.

France:

- Academia & research, local and national government have a substantial presence.
- Private investors, environmental NGOs, and financing institutions are moderately represented.

The bottom chart of Figure 6 shows the distribution of stakeholder groups segmented by the level at which they operate: state, regional, national, local, and international (transnational).

State and national-level stakeholders, represented in blue and yellow, hold a dominant position in categories such as national government, power producing companies, and mining companies. This indicates that decision-making in these sectors is largely centralized, with policies and regulations being influenced at higher administrative levels. In contrast, local and regional actors, shown in light blue and dark green, play a key role in areas like local government, local and national media, and public-private partnerships, highlighting the importance of public initiatives and localized governance in shaping regional transitions. International or transnational stakeholders, marked in green, are notably present in environmental NGOs and financing institutions, suggesting that global organizations and external funding sources contribute to sustainability efforts and financial support for post-mining transitions. This distribution of influence underscores the need for coordinated efforts among different levels of governance to ensure effective stakeholder engagement.

Implications for stakeholder engagement vary by country, as different nations exhibit distinct stakeholder dominance, requiring tailored engagement strategies. The strong involvement of academia suggests that research-driven policy recommendations could be particularly effective in shaping post-mining transitions. The presence of local and national business organizations indicates potential collaborations for economic transition strategies, leveraging their influence to drive sustainable development. International and transnational actors, such as NGOs and financing institutions, play a crucial role in supporting both environmental and economic transitions, often providing funding and expertise. Academia & Research is one of the most represented stakeholder group across all countries, giving a key role in coal mine heritage and industrial transformation projects. Civil society and local government also show significant involvement, highlighting their importance in ensuring that local interests and concerns are addressed. Environmental NGOs and financing institutions tend to have a more localized presence, focusing on specific regions or communities where their interventions can have the greatest impact. Environmental NGOs have a presence, especially in Greece and Germany, advocating for sustainability and ecological concerns. Meanwhile, mining companies and power producing companies operate primarily at the national and regional levels, reflecting their broader operational scope and influence in shaping energy and resource policies.

4.3 Knowledge on the history of coal mining

The results of the level of knowledge and connection different stakeholders and countries have with coal mining are represented in Figure 7. The top section presents country-level distributions, while the bottom section explores stakeholder-specific group knowledge.

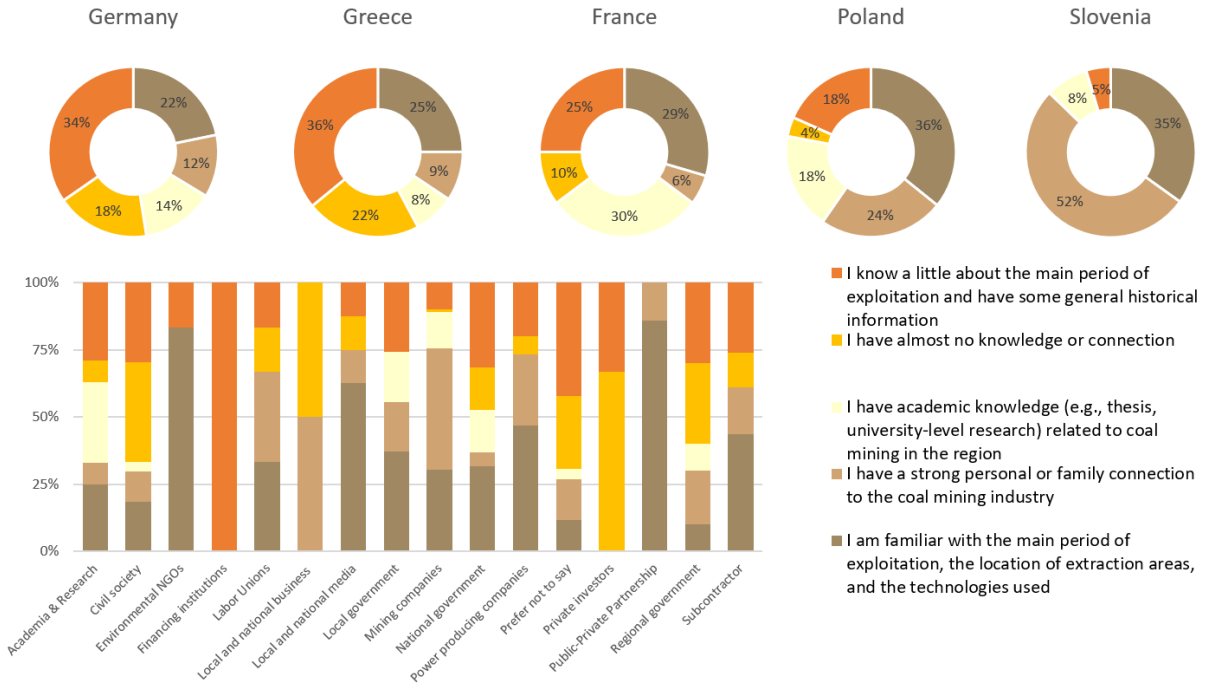

Figure 7. Chart showing the knowledge level of local coal mining history, segmented by project countries (top) and by stakeholder groups (bottom).

In Germany, most respondents (34%) have some general historical knowledge about coal mining, while 22% have almost no knowledge or connection to the industry. A smaller segment (18%) possesses academic knowledge, and 14% have a strong personal or family connection. Similarly, Greece follows a comparable pattern, with 36% having general knowledge, but with a relatively higher share (22%) of respondents not having connection or knowledge. Only 8% of respondents in Greece reported academic knowledge.

In France, 10% of respondents have almost no knowledge or connection to coal mining. Meanwhile, 25% of respondents know a little about the main period of exploitation and have some general historical information, showing that a quarter of the surveyed population has at least a basic awareness of coal mining history. A relatively small portion, 6%, has a strong personal or family connection to the industry, indicating that direct ties to coal mining are less prevalent than in some other countries. However, 29% of respondents are familiar with the main period of exploitation, the location of extraction areas, and the technologies used, highlighting a substantial level of technical or industry-specific knowledge in the participant population. Additionally, 30% have academic knowledge related to coal mining in the region, suggesting a significant involvement of research and education in coal heritage and industrial transformation discussions. In Poland, 36% of respondents have a strong personal or family connection to the coal mining history, while 24% is familiar with the mining period of extraction. However, only 4% reports no knowledge or ties to the industry, the lowest

proportion among the five countries. Slovenia stands out with the highest percentage (52%) of respondents who have a strong connection to the coal mining history, and 35% familiar with the history of coal mining in the region, while only 8% reported having academic knowledge, Slovenian participants reported the lowest or null participants with no knowledge about the coal industry.

The bottom section of the chart highlights variations in knowledge levels across different stakeholder groups. Academia & Research, as well as environmental NGOs, have a higher proportion of respondents with academic expertise, reflecting their role in coal mining research and policy discussions. Mining and power-producing companies demonstrate a stronger familiarity with coal exploitation and extraction methods, likely due to their direct industry involvement.

Local and national business organizations, along with financing institutions, exhibit mixed levels of awareness, with a significant portion of respondents having only general historical knowledge. Meanwhile, civil society and local government display a more varied knowledge base. While some individuals in these groups possess personal connections or academic insights, a substantial proportion has only a basic understanding of coal mining.

Overall, Slovenia appears to have the strongest connection to coal mining, with over half of respondents having strong connection to the mining industry. Across all countries, general historical knowledge is the most common level of familiarity with coal mining. The differences in knowledge levels across stakeholder groups suggest that future engagement efforts should consider these variations, particularly in shaping communication and policy strategies tailored to different private investors and different local business having not really connection to the coal mining but interested in being change of the cities transformation.

4.4 Perception of options, find more familiar options

The data regarding the questions about the perception of coal heritage and the knowledge and awareness of transformation options are depicted in Figure 8.

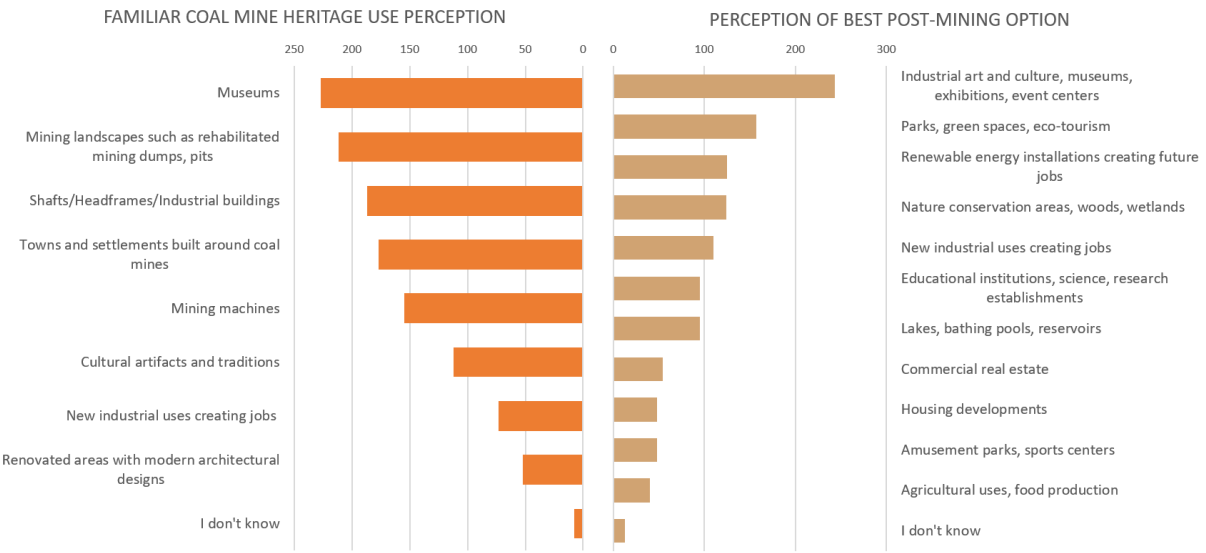

Figure 8. Comparison of the most familiar perceptions of coal mine heritage use (left side) and the perception of the best-known post-mining options (right side).

On the left side, the perception of familiar coal mine heritage use shows that museums are the most recognized form of heritage, with the highest number of responses. This suggests that coal mining history is often preserved and presented through museums. The second most familiar category is mining landscapes, such as rehabilitated mining dumps and pits, indicating that landscape transformations remain a visible part of post-mining heritage. Other well-known elements include shafts, headframes, and industrial buildings, as well as towns and settlements that were built around coal mines. Mining machines and cultural artifacts also hold a moderate level of recognition, showcasing the technical and cultural aspects of coal mining history. However, new industrial uses creating jobs and modern architectural renovations appear to be less familiar to respondents, suggesting that heritage conservation efforts are still largely tied to historical rather than contemporary reuse.

On the right side, the perception of the best post-mining option indicates a strong preference for industrial art and culture, including museums, exhibitions, and event centres. This aligns with the most familiar coal heritage use, reinforcing the idea that preserving coal-related history is an important societal concern. Parks, green spaces, and eco-tourism rank as the second most chosen post-mining option, followed by renewable energy installations, which highlight a growing interest in sustainable and job-creating alternatives for former mining areas. Other well-supported ideas include nature conservation areas, new industrial uses, and educational institutions, all of which emphasize economic and environmental regeneration. Interestingly, options like housing developments, amusement parks, sports centres, and agricultural uses rank lower, suggesting that the public sees former mining areas as more suited for cultural, industrial, and ecological transformation rather than residential or recreational purposes.

Overall, the findings reveal that the public largely associates coal heritage with historical preservation, particularly through museums and industrial landmarks. However, when considering future land use, there is a clear preference for integrating cultural, ecological, and renewable energy solutions that can create jobs and contribute to sustainable development.

4.5 Perception on the most attractive options for the public stakeholder

Figure 9 represents the preferred land use options for post-mining areas, based on a ranking question where respondents rated different options on a scale from 1 to 10. The results reflect the average scores given to each category, providing insight into public preferences for repurposing former coal mining sites.

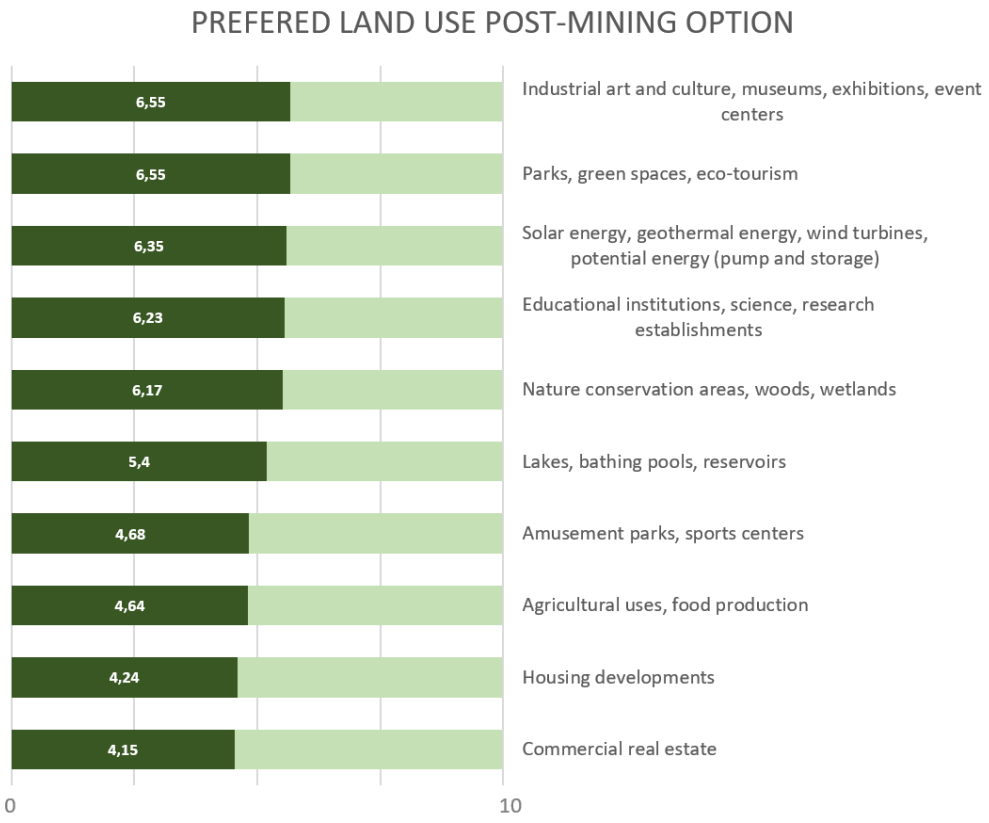

Figure 9. Results showing preferred land use option after mining operations.

The highest-rated options are parks, green spaces, and eco-tourism (6.55) and industrial art and culture, including museums, exhibitions, and event centres (6.55). This indicates that respondents strongly value both environmental rehabilitation and the cultural preservation of mining heritage. The strong preference for green spaces suggests a desire to transform former mining areas into recreational and ecologically beneficial landscapes, while the support for industrial culture reflects an interest in maintaining historical identity through tourism and educational initiatives.

Closely following, renewable energy sources (6.35) and educational institutions (6.23) rank highly. This highlights a focus on sustainability and knowledge-based redevelopment. The interest in solar, geothermal, and wind energy indicates that the public sees former mining areas as potential sites for energy transition projects. Similarly, the positive perception of research and educational institutions suggests a belief that these locations could serve as hubs for innovation and scientific development.

Nature conservation areas (6.17) also receive strong support, reinforcing the trend toward ecological restoration. Meanwhile, lakes, bathing pools, and reservoirs (5.4) are seen as a moderately favourable option, likely due to their potential for both environmental and recreational benefits.

On the lower end of the ranking, amusement parks and sports centers (4.68), agricultural uses (4.64), housing developments (4.24), and commercial real estate (4.15) received the least support. This suggests that respondents do not see former

mining areas as ideal locations for intensive urbanization or commercial expansion. Instead, they prioritize cultural, environmental, and sustainable energy uses.

Overall, the ranking reveals a clear preference for transforming post-mining landscapes into spaces that balance nature, culture, and sustainability.

4.6 Awareness of current transformation projects in the project countries

This section of the questionnaire is focused on assessing perceptions and awareness of ongoing transformation and reactivation initiatives in specific regions. This qualitative question aligns with the goals the CoalHeritage project, which seek to establish an international network for preserving and revitalizing former mining sites. It is noteworthy that a significant majority of participants demonstrated awareness of transition projects within the area. Figure 10 provides a detailed overview of the region's transformation phase, highlighting widespread awareness and interest among respondents in these developmental efforts. This data underscores the importance of community engagement and strategic planning in promoting sustainable regional development initiatives.

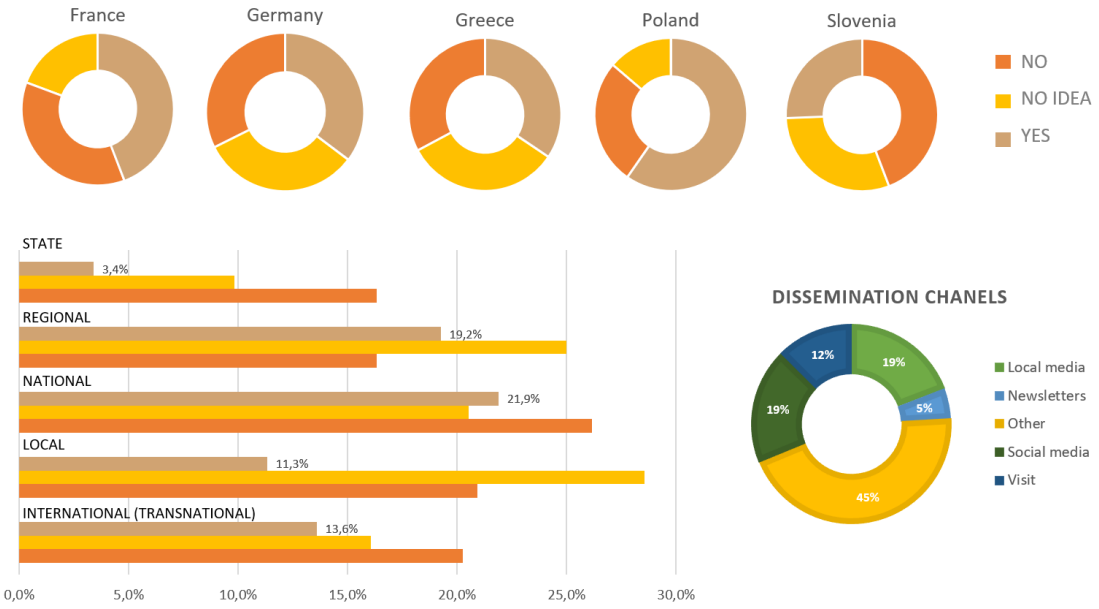

Figure 10. Chart showing the awareness of transition projects in the studied areas (top chart). Results of awareness of transition projects by stakeholder outreach and coverage (bottom left), and the dissemination channels through which stakeholders have been informed about those transition projects (bottom right).

By focusing the analysis on the coverage and outreach of such projects, the majority of coal phase-out transition projects are recognized nationally (21.9%), with significant regional and local influence ranging from 11,3% to 19.2% (lower left part of Figure 10). Another crucial aspect covered in the survey was the effectiveness and impact of various dissemination channels in reaching audiences and stakeholders, which may influence the coverage international of the results (13,6%). Results indicate that social and local media play a predominant role in project communication. However, there are also other communication channels deserving exploration to underscore the importance of preserving or transforming former coal mining sites.

After reviewing individual answers from the participants, some projects dedicated to the transformation and reactivation of mining sites have been identified. These

responses are grouped by project country and include different project topics, locations, and historical sites as given in Table 3.

Table 3. Matrix of current and past projects and notable mining places collected by the survey throughout the countries participating in the project.

Country	Projects	Sites	Initiatives
Slovenia	▪ Revitalization of old power plant into educational and training centres. ▪ Future-oriented projects like the Jump Over the Skin Centre. ▪ Brownfield projects in thermal power plants, production and storage of green hydrogen, and solar initiatives. ▪ CoalHeritage, GreenJOBS, REECOL.	▪ Museum of Coal Mining of Slovenia.	▪ Geothermal energy, floating solar power plants, hydrogen production study, ▪ Industrial redevelopment (TEŠ conversion, business incubators), ▪ Tourism & renewable energy projects.
Poland	▪ Information platform for post-industrial and degraded areas in Silesia (OPI TPP3), GreenJOBS, Merida. ▪ Development in the natura area 'Żabie Doły' in Chorzów, restaurants in 'Elżbieta Shaft,' Luiza Mining Museum in Zabrze. ▪ Various other projects under the OPI TPP 2 initiative. ▪ CoalHeritage, CoalTech2051, Recovery, Flominet, ROPT, FESL 2021-2027, HESS (Hybrid Energy Storage System using post-mining infrastructure), ProVAM, REM, REECOL, MasterMINE, LIFEPOPWAT.	▪ Silesia City Center, Silesian Museum in Katowice, Guido Mining Museum, Queen Luisa Sztolnia, Ignacy Historic Mine, Stara Kopalnia (Wałbrzych), Nikiszowiec, Katowicki HUB Gamingowo-Technologiczny, Historic Silver Mine (Tarnowskie Góry).	
Greece	▪ ATLANTIS, WINTER, POTENTIALS, RECPP, Strategy CCUS, Pilotstrategy, METAVASI S.A., CoalHeritage, Coalition, GreenSmartMed, Finmed, DeCarb, MinRescue, GreenJOBS, MERIDA, PilotSTRATEGY, POMHAZ, RECPP, REPowerEU, STRATEGY CCUS, COALBYPRO, COAL2GAS, Just Transition Plan.	▪ Lignite Mines (Northern Greece)	▪ Renewable energy projects (Photovoltaic, wind turbines), Waste management & recycling.
Germany	▪ WINTER, POTENTIALS, GreenJOBS and CoalHeritage. ▪ Watersense, Freiheit Emscher, reclamation projects of mine dumps by Regionalverband Ruhr (RVR). ▪ Novocarbo – Grüne Fernwärme durch Pflanzenkohle, Just Transition, IGA 2027, Kulturhauptstadt 2010, Strukturwandel Ruhrgebiet. ▪ Re-use initiatives for Ruhr and Saar industrial sites.	▪ Colliery Zollverein in Essen, German Mining Museum in Bochum, Phoenix See in Dortmund, Landscapepark Duisburg-North. ▪ Colliery Ewald, Dump Hoheward, Bottrop skiing, Mont-Cenis, Dump Rungenberg. ▪ Mark 51, Lohberg Kreativ Quartier, Freiheit Emscher, LWL-Museum Colliery Zollern, Cooking Plant Hansa, Peiting Geotop.	
France	▪ Mining Center of Faymoreau, museums, tourism, cycling, solar energy, and riding schools. ▪ Projects involving Gaz de Mine, solar panel and recreational parks. ▪ Exploration of natural hydrogen, coal bed methane, and mine gas. ▪ CAP Découverte, H2 Project in Lorraine (by FDE - Française de l'Énergie), Hydrogène Blanc, Energy-themed tourist trail, Nex Energies Productions, Projet de réhabilitation des logements miniers, PV Parc Gardanne, Utilisation du gaz de mine, creation of a film library of films shot in the coalfields.	▪ Bassin minier Nord Pas-de-Calais (UNESCO), Parc Loisinord, Le Louvre-Lens, Musée mine départemental de Cagnac-les-Mines, Centre Historique Minier (Lewarde), 9-9bis (Oignies), 11/19 Loos-en-Gohelle, Centre Minier de Faymoreau, Eco-tourism on spoil tips in Northern France, Grand-Hornu, Bois du Cazier, Bois-du-Luc, Blegny-Mine (Belgium), Park Explor Wendel.	

This comprehensive overview highlights the diversity and scope of projects across different countries, showcasing efforts in revitalizing former coal mining areas through innovative and sustainable practices.

4.7 Main stakeholders participating in transformation projects

Following the identification of the most engaged stakeholders in transition and reactivation projects, the survey results on awareness and involvement in these initiatives are depicted in Figure 11. The illustration reveals that 13% of participants are aware of these projects, with some actively contributing to their success. Among the top stakeholders, academia and research participants demonstrate the highest levels of participation and involvement. This can be attributed to their role in advancing knowledge, technology, and innovation necessary for sustainable transition and reactivation efforts.

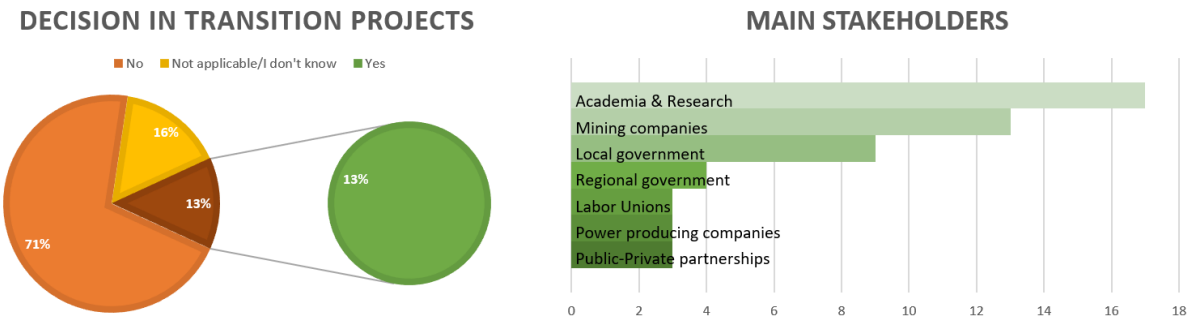

Figure 11. Chart showing the level of participation and the public stakeholder groups involved in transition projects.

Mining companies also show significant engagement, likely driven by their historical ties and expertise in resource management and environmental reclamation. Local and regional government entities are involved, leveraging their regulatory and planning authority to support and oversee these projects within their jurisdictions. On the other hand, power-producing plants exhibit and public-private partnerships in less degree involvement among the identified stakeholders. This lower participation may stem from differing priorities or operational focuses that may not directly align with transition and reactivation initiatives aimed at repurposing former mining sites.

4.8 Acceptance of preservation/ transformation measures

The following questions of the survey focused on rating the efforts on the regional government and local municipalities on their efforts to manage coal transition in the countries. After processing the results, it is possible to see in the bar chart given in Figure 12, a holistic and specific assessment of the transition management efforts perceived by the participants. For Germany, the higher scores located to the upper part of the evaluation with, an overall score of 8, while for France the peak locates to the score of 6. For Slovenia, peak result locates in the score of 9 and second position is by the score of 8. Overall, the assessment shows a positive increasing tendency, still Poland and Greece represent lower scores on the assessment, by locating in a score of 5 for both countries in the majority of the votes.

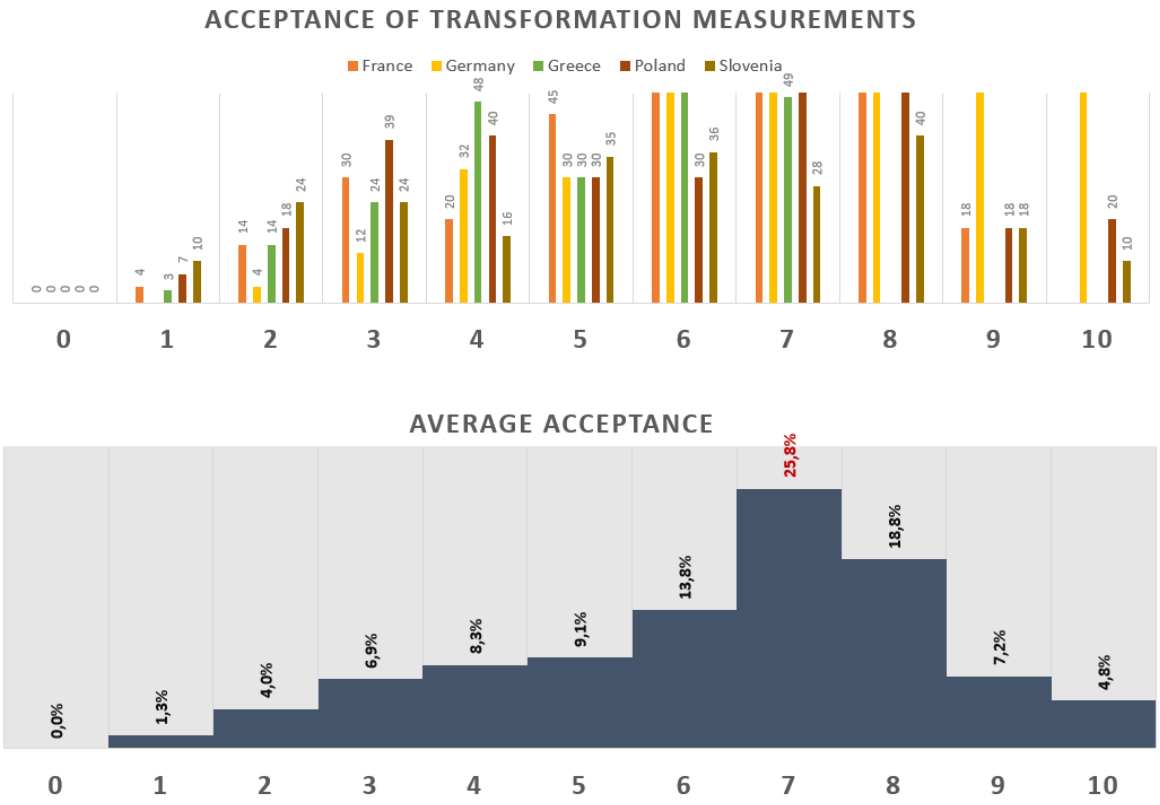

Figure 12. Chart showing the level of acceptance from 0 (no acceptance) to 10 (high acceptance) of coal mining transition projects in the project countries (top chart) and the general acceptance perception of all participants (bottom chart).

The understanding of the evaluation criteria needs to be considered as the level of acceptance of the different participants towards the current policies and managing bodies regarding the coal transition phase. Average results show that the evaluation locates towards a score of 7, with 25,8% and score of 8 with 18,8%.

4.9 Perception of responsible bodies to maintain/finance post-mining areas

One important aspect addressed in this report is to determine who should participate in the preservation of historical mining sites, beyond heritage institutions. Figure 13 chart illustrates respondents' perceptions regarding this matter, highlighting that government, local communities, and residents are considered crucial for managing and financing coal transition projects. Following closely a diverse range of stakeholders is in the third place. Additionally, mining companies and environmental organizations are also recognized as significant contributors.

One reason for involving government, community, and local residents in these efforts is their direct stake in the socio-economic and environmental outcomes of such projects. Their involvement ensures that initiatives align with local needs and priorities, fostering sustainable development and community engagement.

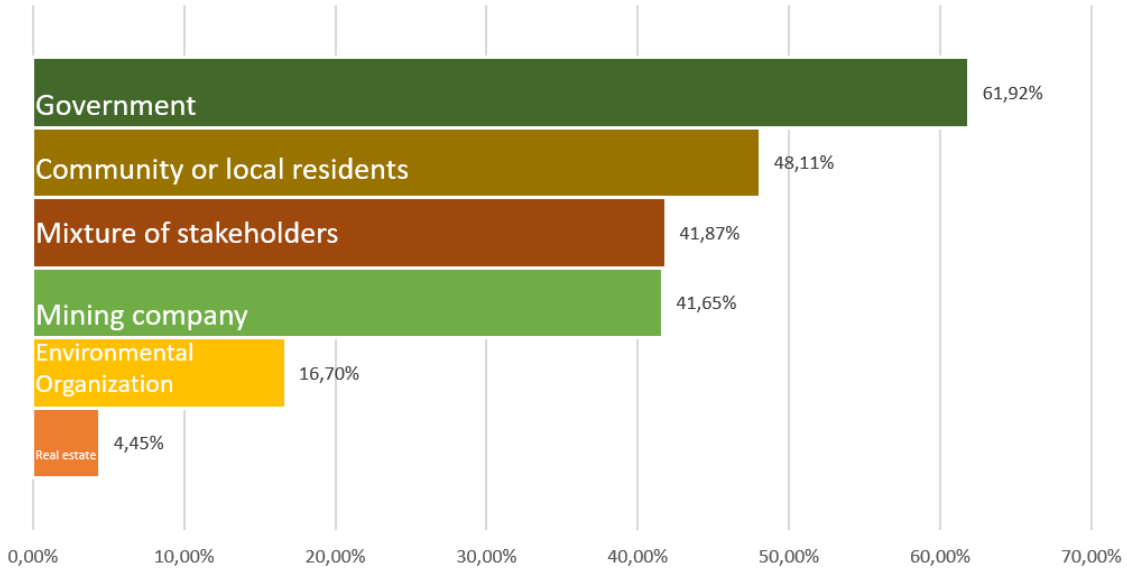

Figure 13. Chart showing the percentage assigned to each responsible bodies' on maintaining and financing the reactivation and transition of coal mine heritage sites.

4.10 Interest in being part of the preservation/maintenance/financing process

Following the assessment of awareness and understanding regarding the coal transition phase, the survey explored respondents' commitment and interest in supporting the preservation, maintenance, and financing of such projects. Overall, respondents from various countries showed a positive inclination and openness towards these initiatives in Figure 14.

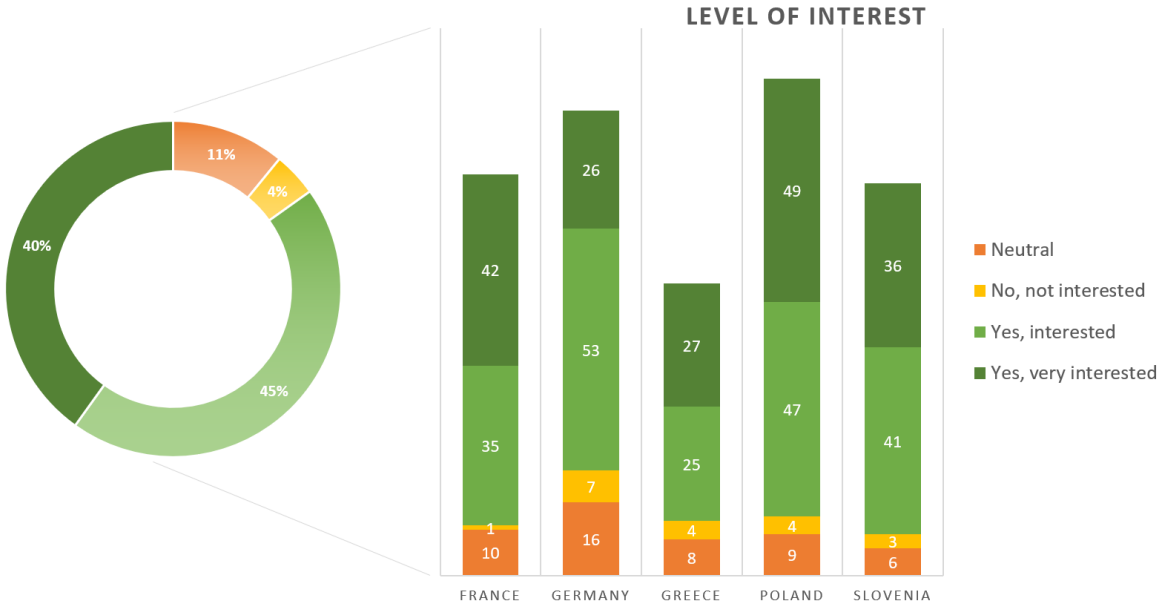

Figure 14. Chart showing the general level of interest on supporting reactivation and transition projects on maintaining and preserving coal mine heritage (left) and segmented by regions (right).

The interest in coal heritage preservation varies across age groups, with particularly strong support among individuals aged between 41-60 years. These demographic

likely values historical preservation and sees the importance of maintaining cultural and environmental legacies for future generations. Additionally, those aged from 21-40 years, also demonstrate significant interest, even though slightly less than the older age group, indicating a generational continuity in valuing heritage and sustainable development.

Responses indicating no interest or neutrality were minimal across all age groups, underscoring a broad consensus on the importance of coal heritage preservation projects. This unified support suggests a widespread recognition of the cultural, historical, and environmental significance of these sites.

One significant reason for this broad support is the economic and social benefits associated with heritage preservation. These projects can boost local economies through tourism, promote community pride and identity, and contribute to environmental conservation efforts. Furthermore, preserving historical mining sites can serve as educational resources, fostering awareness about industrial history and sustainable land use practices.

In conclusion, the survey findings highlight a strong public endorsement for coal heritage preservation initiatives across different age demographics and regions. Government agencies, local communities, residents, and a variety of stakeholders are identified as crucial partners in managing and financing these projects. This collaborative approach ensures that efforts are sustainable, inclusive of diverse perspectives, and aligned with community interests and environmental goals.

4.11 Measure the interest and desire for specific projects in the project countries

As the final question of the survey, the intention was to explore the interests and priorities of future policies concerning transition projects for deciding land use after mining ceases. Figure 15 illustrates the predominant trends in terms of policy focus:

1. **Creation of new jobs:** The highest priority identified across all respondents is the creation of new employment opportunities. This reflects a universal concern for economic sustainability and addressing potential job losses due to the decline of mining activities.
2. **Environmental protection and sustainability:** Following closely, environmental protection and sustainability rank second in importance. This underscores a collective commitment to mitigating environmental impacts and promoting sustainable practices in post-mining landscapes.
3. **Preservation of culture and history:** The preservation of cultural heritage emerges as the third priority. This indicates a recognition of the historical significance of mining regions and the desire to safeguard cultural identities and historical legacies.
4. **Education and training opportunities:** Fourth in priority are initiatives focused on education and training. This reflects a proactive approach to the process of equipping communities with the skills and knowledge needed for the transition to new economic activities beyond mining.
5. **Social integration and community projects:** Lastly, social integration and community-focused projects are considered least prioritized. This may suggest a need for greater emphasis on fostering cohesive community relations and addressing social challenges associated with economic transition.

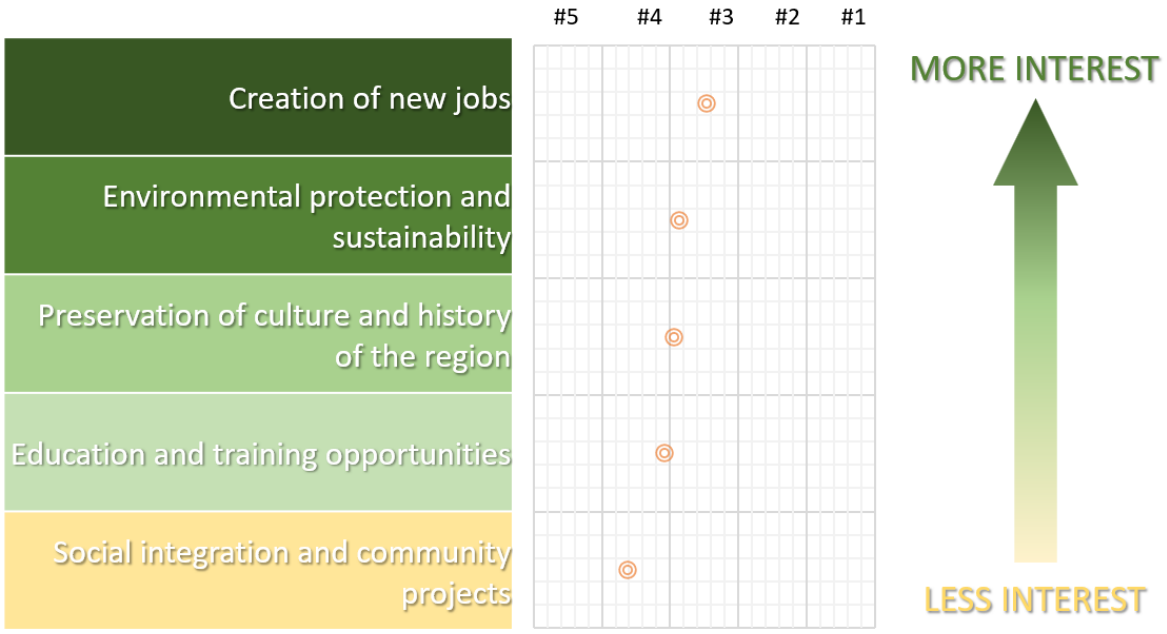

Figure 15. Chart showing the ranking results for measurements and actions that should be of particular focus of policy among the participants.

These results show a little discrepancy when the specific results for each country region as given in Figure 16 is taken into consideration.

	#5	#4	#3	#2	#1
GERMANY	Environmental protection and sustainability	Social integration and community projects	Preservation of culture and history of the region	Education and training opportunities	Creation of new jobs
FRANCE	Education and training opportunities	Social integration and community projects	Preservation of culture and history of the region	Creation of new jobs	Environmental protection and sustainability
GREECE	Social integration and community projects	Environmental protection and sustainability	Education and training opportunities	Preservation of culture and history of the region	Creation of new jobs
POLAND	Social integration and community projects	Environmental protection and sustainability	Preservation of culture and history of the region	Creation of new jobs	Education and training opportunities
SLOVENIA	Social integration and community projects	Environmental protection and sustainability	Education and training opportunities	Preservation of culture and history of the region	Creation of new jobs

Higher interest

Figure 16. Matrix of most voted policies for each project country.

For example, Figure 16 shows that across all countries, the creation of new jobs emerges as a critical priority, reflecting a strong emphasis on economic growth and employment stability. This is particularly evident in Greece, Germany, and Slovenia, where job creation is the top priority, while France and Poland rank it second.

Cultural preservation is another significant area of focus, appearing in the top three priorities for Greece and Slovenia, and as the third priority for France, Germany and Poland. This underscores the importance these countries place on maintaining their historical and cultural heritage. Education and training also play a crucial role, especially in Poland, where it is the top priority, and in Germany, where it ranks second. Slovenia and Greece also prioritize education within their top three, highlighting a shared commitment to developing human capital and ensuring a skilled workforce.

Environmental protection, while important, varies in priority. France stands out by placing it at the top, reflecting a strong commitment to ecological sustainability. In contrast, other countries rank it lower, indicating that while environmental concerns are recognized, they may take a backseat to economic and cultural priorities. Social integration, though acknowledged, is consistently a lower priority across all countries, often appearing as the fourth or fifth priority. This suggests that while fostering community cohesion is valued, it is not as immediately pressing as economic, cultural, and educational goals.

Overall, the table reveals a common focus on economic stability, cultural preservation, and education, with varying levels of emphasis on environmental protection and social integration. These priorities reflect the unique challenges and values of each country, providing a clearer picture of their current policy directions and areas of focus.

4.12 Future-oriented possibilities

By looking at the results of the which kind of jobs or opportunities the participants would like, the following results have been analysed.

Tourism and heritage conservation: This is the most frequently mentioned industry across all countries, particularly in France, Greece, Poland, and Slovenia. This reflects a common perception that mining heritage can serve as a source of cultural and tourist attraction. Respondents see potential in developing museums, guided tours, and cultural centers that highlight the history of mining, turning these areas into hubs for cultural tourism.

Renewable energy: Especially relevant in France, Greece, and Germany. Respondents recognize the significant potential for transitioning to clean energy in former mining areas, with a focus on solar, wind, and geothermal energy projects. This trend aligns with global efforts to combat climate change and repurpose abandoned mining sites for sustainable energy production.

Environmental restoration and remediation: These possibilities are more prominent in France and Germany, where respondents emphasize the importance of cleaning up and restoring lands affected by mining. They highlight the creation of jobs in green construction, environmental consultancy, and other roles focused on ecological recovery, which can contribute to both environmental and economic revitalization.

Advanced manufacturing and technology: This industry is more relevant in Germany, Poland, and Slovenia, where respondents see opportunities in high-tech manufacturing and innovation. These countries appear to focus on leveraging technological advancements to create new jobs and drive economic growth in post-mining regions.

Sustainable agriculture: Sustainable agriculture is mentioned primarily in France and Greece, but it is not a priority in other countries. In these two nations, respondents suggest developing agricultural businesses, such as vertical farming or local produce markets, as a way to generate employment and promote sustainability.

France combines tourism, renewable energy, and environmental restoration as key pillars for job creation. The country's approach reflects a balanced focus on cultural preservation, sustainability, and economic development. Greece focuses on tourism and renewable energy, with less emphasis on environmental restoration. The country sees potential in leveraging its mining heritage for cultural tourism and transitioning to clean energy, but ecological recovery is not a primary concern. Germany prioritizes renewable energy and advanced manufacturing, with a strong technological focus. The country's responses highlight a forward-looking approach that emphasizes innovation and sustainability in post-mining regions. Poland and Slovenia combine tourism with advanced manufacturing, with less emphasis on renewable energy and environmental restoration. Their focus is on cultural tourism and high-tech industries as drivers of economic growth in areas associated with mining heritage.

5. Conclusions

The stakeholder awareness survey was conducted over four months, targeting a public audience from the participant countries of the EU-CoalHeritage project (France, Slovenia, Germany, Poland, and Greece). This report presents the initial results of the questionnaire, providing both quantitative and qualitative insights over 449 participants. The survey assessed the perception and awareness of a diverse range of stakeholders, the influence of different generations, and the knowledge level on post-mining land use scenarios. Additionally, the survey addressed the responsible bodies for the maintenance, financing, and management of former coal sites. The concluding remarks are summarized as follows:

- The age distribution graph reveals a significant concentration of participants in the middle-aged group, with notable variations across different countries. Addressing the underrepresentation of younger and older age groups can enhance the inclusivity and representativeness of stakeholder engagement processes in coal heritage preservation and industrial transformation projects.
- Tailoring policies to engage underrepresented groups like environmental NGOs and financing institutions could enhance project outcomes.
- Strategies to engage a broader range of stakeholders, especially at the local and national levels, can ensure more inclusive and effective project implementation.
- There is a balance between cultural preservation and practical, economic sustainability. While cultural and historical preservations remain important, there is a clear shift towards functional uses that support economic development and community well-being. The emphasis on eco-tourism and green spaces aligns with environmental preservation goals, while preferences for energy creation and infrastructure development suggest a balanced approach to achieving both environmental and economic revitalization in post-mining regions.
- Results emphasize the need for a multifaceted approach to post-mining land use that integrates cultural heritage preservation with practical and sustainable development strategies. This balanced perspective ensures that former mining regions can transition successfully into vibrant, economically viable, and environmentally sustainable communities.
- The survey findings highlight a strong public endorsement for coal heritage preservation initiatives across different age demographics and regions. Government agencies, local communities, residents, and a variety of stakeholders are identified as crucial partners in managing and financing these projects. This collaborative approach ensures that efforts are sustainable, inclusive of diverse perspectives, and aligned with community interests and environmental goals.
- While there is a clear emphasis on preserving coal heritage and promoting eco-tourism in post-mining regions, stakeholders also prioritize practical uses like agriculture, housing, and infrastructure development. This dual focus reflects a nuanced approach to balancing cultural preservation with economic and environmental sustainability in the reclamation and redevelopment of former mining areas. Understanding these perceptions and preferences is crucial for effective planning and stakeholder engagement in future development initiatives.

In conclusion, the successful transition of former coal mining regions into sustainable and vibrant communities' hinges on a balanced approach that values both cultural heritage and practical development. The insights gained from this survey provide a roadmap for policymakers and stakeholders to collaboratively shape future land-use policies that foster economic growth, environmental stewardship, and cultural preservation. Continued engagement and collaboration among all stakeholders will be essential in achieving these goals and ensuring the long-term success and vitality of post-mining regions.

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Appendices

Appendix 1. Complete survey questionnaire created, questions, type of questions and desired goal/ objective.

Question	Objective/Type of question
1. Please select your region. o France o Germany o Greece o Poland o Slovenia	Get the specific region of the stakeholder ▪ Single choice
2. Please select your age range. o Younger than 20 years o 21 – 40 years o 41 – 60 years o Over 60 years	Does the perception change with age? Which group is more interested? Level of engagement ▪ Single choice
3. Please select the option that best represents your stakeholder group. o Mining companies o Power producing companies o Labor Unions o Subcontractors/ Suppliers/ Service companies o National government o Regional government o Local government o Academia & Research o Local and national media o Environmental NGOs o Civil society o Local and national business organizations (e.g. chamber of commerce/trade) o Financing institutions o Private investors o Multinational institutions (European Commission / Directorate General) o Public-Private Partnership o Prefer not to say o Other (please specify)	Identification of stakeholder group ▪ Single choice

If applicable, please specify the spatial coverage level of your organization or group. o Local o Regional o State o National o International (Transnational)	Coverage and outreach of such group ▪ Multiple choice
5. How would you describe your understanding and connection to the coal mining industry in your region?? o I have almost no knowledge or connection o I know a little about the main period of exploitation and have some general historical information o I am familiar with the main period of exploitation, the location of extraction areas, and the technologies used o I have a strong personal or family connection to the coal mining industry o I have academic knowledge (e.g., thesis, university-level research) related to coal mining in the region	Knowledge on the history of coal mining ▪ Comment box (so the user can argue their level of knowledge)
6. When you think about industrial coal heritage, which three of the following are most familiar to you? o Museums o Shafts/Headframes/Industrial buildings o Mining machines o Mining landscapes such as rehabilitated mining dumps, pits o Cultural artifacts and traditions (e.g. songs, mining symbol, parades, festive events) o Renovated areas with modern architectural designs o Towns and settlements built around coal mines o New industrial uses creating jobs (e.g., manufacturing plants,	Perception of options, find more common options ▪ Multiple choice

renewable energy installations, public spaces like multiplexes, malls, restaurants, cinemas, thematic parks such as diving parks or exhibition centers) o I don't know	
7. Which land-use category after mining activities come first to your mind? Please select them o Industrial art and culture, museums, exhibitions, event centers o Commercial real estate o Housing developments o Nature conservation areas, woods, wetlands o Parks, green spaces, eco-tourism o Educational institutions, science, research establishments o Amusement parks, sports centers o Lakes, bathing pools, reservoirs o Agricultural uses, food production o Renewable energy installations creating future jobs (e.g., solar, geothermal, wind turbines, potential energy) o New industrial uses creating jobs (e.g., manufacturing plants, storage installations, public spaces such as multiplexes, thematic parks, or exhibition centers) o I don't know	Knowledge on transformation/ post-mining options ▪ Multiple choice
8. Which land-use category after mining activities do you prefer to see? Please rank them o Industrial art and culture, museums, exhibitions, event centers o Commercial real estate o Housing developments o Nature conservation areas, woods, wetlands o Parks, green spaces, eco-tourism o Educational institutions, science, research establishments o Amusement parks, sports centers o Lakes, bathing pools, reservoirs o Agricultural uses, food production	Perception on what are the most attractive options for the stakeholder ▪ Options will be possible to rank ▪ Comment box for other preference, specific preference not listed

○ Solar energy, geothermal energy, wind turbines, potential energy (pump and storage) ▪ Comment box (optional)	
9. Know of coal transition projects in your area? ○ Yes ○ No ○ No idea (If you are unsure or do not have sufficient information, you may skip to the next question.)	Awareness of current transformation/reactivation projects in specific region ▪ Single choice
10. If yes, name few of them (Comment box)	If yes, additional question to obtain the source of information ▪ Comment box for specific option
11. How and where did you become aware of such projects? ○ Local media ○ Social media ○ Visit ○ Newsletters ○ Other (please specify)	If yes, additional question to obtain the source of information ▪ Multiple choice ▪ Comment box for specific option
12. Have you been part of deciding on mentioned projects? ○ Yes ○ No ○ Not applicable/I don't know	Verify the level of participation or enrolment. Rise interest ▪ Only one choice
13. How do you rate the efforts of the (regional) government and the local municipalities to manage the coal transition in your region? ○ 0 (very poor) to 10 (very good)	Acceptance of preservation/ transformation measures ▪ Number Slider
14. Who should be the main responsible stakeholder to maintain or reactivate post-mining places as heritage? ○ Community or local residents ○ Environmental organization ○ Government ○ Mining company ○ Mixture of stakeholders ○ Real estate ○ Other (please specify)	Perception of responsible bodies to maintain/finance post-mining areas ▪ Multiple choice

15. From your position, would you support the development of coal heritage preservation projects in your region? o Yes, very interested o Yes, interested o No, not interested o Neutral	Interest in being part of the preservation/maintenance/financing process ▪ Single choice
16. From your perspective, what projects or measures in your region should be a particular focus of policy? Please rank them. o Environmental protection and sustainability o Creation of new jobs o Preservation of culture and history of the region o Education and training opportunities o Social integration and community projects o Other (please provide your opinion)	Measure the interest and desire for specific projects in the selected region ▪ Multiple choice, ranking.
17. According to your opinion what kind of industry in areas associated with mining heritage can generate new jobs or could be valuable for workplaces? o Tourism and Heritage Conservation – Developing museums, guided tours, or cultural centers focused on coal mining history. o Renewable Energy – Investing in solar, wind, or geothermal energy projects in former mining areas. o Advanced Manufacturing and Technology – Promoting high-tech manufacturing and innovation industries. o Sustainable Agriculture – Developing agri-tech businesses, such as vertical farming or local produce markets. o Environmental Restoration and Remediation – Developing jobs focused on cleaning up and restoring the land affected by mining. These efforts can include	Measure the interest and desire for work generation in the selected region ▪ Multiple choice, ranking.

green construction projects or environmental consultancy roles.	