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Technical Group: TGK1

Web INTEractive management tool for coal Regions in transition

Deliverable 5.4

Final conference to show WINTER's results

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Dissemination level:

PU = Public

PP = Distribution restricted to other programme participants

RE = Distribution restricted to a group specified by the consortium

CO= Confidential, only allowed for members of the consortium

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Table 1: Participants from the WINTER consortium

Institution	Project Officer and the WINTER consortium
REA	Dr KOSIAVELOU Vasiliki
CERTH	Nikolaos Koukouzas – **NK** Konstantina Pyrgaki - **KP** Theodoros Zarogiannis - **TZ** Pavlos Krassakis – **PK** Andreas Karavias - **AK** Evangelia Zygouri - **EZ** George Maraslidis – **GM**
POLTEGOR	Barbara Rogosz -**BR** Aleksandra Szwaja - **AS**
DMT-THGA	Stefan Möllerherm – **SM**

The final event was both a project partner meeting and a public conference. Table 1 shows the participants from the WINTER consortium. The conference showcased the results of the project and included both internal project partners and external participants from various organizations and sectors. The meeting was held hybrid, both onsite and online, with presentations and discussions covering the project's outcomes, and opportunities for attendees to engage with the material and ask questions.

The participation included a variety of stakeholders from academic institutions, industry, public sector organizations, and research centres. Table 2 presents a list of participants categorized by their affiliations and their participation online/onsite:

The final conference included a diverse group of participants from various organizations and institutions (Figure 1). Attendees from the Centre for Research and Technology Hellas (CERTH) were well represented, contributing numerous members. The University of Athens (UoA) also had a presence, along with participants from the Public Power Corporation (PPC), the National Technical University of Athens (NTUA). Additionally, representatives from the Region of Western Macedonia (RoWM, SPMSWM) were present. Participants from the research and consultancy firm CLEOS attended the meeting. A significant number of participants joined the meeting online, demonstrating the importance and the interest of the event.

Figure 1: photos from the WINTER's final conference

Table 2: Participants, apart from the consortium, by affiliation, role, and whether they participated onsite or online

Affiliation	Role	Participation
University of Athens (UoA)	Researcher	Onsite
	Geology Student	Onsite
	Post-graduate Student	Onsite
CERTH (Centre for Research and Technology Hellas)/Athens	Research Assistant	Onsite
	Research Associate	Onsite
	Geologist	Onsite
	Research Associate	Onsite
	Research Associate	Onsite
	Research Associate	Onsite
	Research Associate	Onsite
	Research Associate	Onsite
	Research Associate	Onsite
	Research Associate	Onsite
	Research Associate	Onsite
	Research Associate	Onsite
CERTH (Centre for Research and Technology Hellas)/Ptolemais	Research Associate	Online
	Research Associate	Online
Public Power Corporation (PPC)	Hydrogeologist	Online
	Geologist	Online
	Director of Mining Studies	Onsite
	Survey Engineer	Online
Metavasi A.E.	Geologist	Online
	Staff Member	Online
National Technical University of Athens (NTUA)	Research Associate	Onsite
CLEOS S.A.	Consultant	Onsite
Regional and Local Authorities	Municipality of Eordaia, Special Consultant	Online
	Region of Western Macedonia Representative	Online
Instituto de Geología Aplicada	Research Fellow	Online
Research Center"Athena"	Project Manager, Head of Innovation Unit	Onsite
University of Western Macedonia	Research Associate	Online
Other Affiliated Organizations	Regional and Waste Management Organization Representative	Onsite
	Environmental Protection Organization Representative	Onsite

1. INTRODUCTION

This report is related to Deliverable 5.4 “Final conference to show WINTER’s results”. The final conference to display the WINTER project's results is an essential deliverable aimed at addressing the multifaceted challenges faced by coal regions in transition. The main objective of WINTER is to cross-examine in a holistic way, case studies representing both initial (Western Macedonia and Konin region) and mature stages (Ruhr area) of the transition process in order to ensure widespread replicability of the findings and recommendations in other areas facing similar challenges. This report summarizes the key points discussed during the final conference, highlighting the outcomes of each work package (WP) and the collaborative efforts of all partners involved.

2. WELCOME BY COORDINATOR

Table 3 shows the agenda of the final conference focusing on the results of the project. Dr. Koukouzas, representing CERTH (Centre for Research and Technology Hellas), started the conference with a warm welcome to all participants. He emphasized the significance of the WINTER project in contributing to the European Green Deal's and RFCS objectives and the broader agenda of transitioning from coal –based to greener energy sources. He also highlighted the collaborative nature of the project, bringing together various stakeholders to address the challenges faced by coal regions in transition.

Table 3: Agenda of final meeting

Time	Topic	Presenter Partner
10:00-10:15	Welcome by the Coordinator Dr. Koukouzas	CERTH
10:15-10:30	Time-slot for PO	Project Officer
10:30-10:45	Overview of WINTER: Project management	CERTH
10:45-11:10	Coffee break	
11:10 -11:35	Results of WP2: Environmental challenges of coal regions in transition and land rehabilitation solutions	All
11:35-12:00	Results of WP3: Socioeconomic and management aspects of coal regions in transition	All
12:00-13:30	Lunch	All
13:30-13:55	Results of WP4: Web interactive tool to address environmental and socioeconomic challenges	CERTH
13:55-14:20	Results of WP5: Dissemination and stakeholder involvement	All
14:20-15:00	Discussion & Meeting closing	All

3. PRESENTATION BY THE PROJECT OFFICER

Project Officer asked the audience if they had used or if they had any interaction with the Horizon Results Platform (HRP) and Horizon Results Booster (HRB) regarding RFCS projects. (Figure 2) HRP is a platform which advances the vision and contributes to dissemination & exploitation of RFCS programs aiming to influence policy, find partners or obtain market uptake. HRB is a portfolio dissemination & exploitation strategy. She asked that if the consortium has not yet any experience with the platforms due to lack of time, to interact with them in order to communicate and find partners and future funding for follow-up projects.

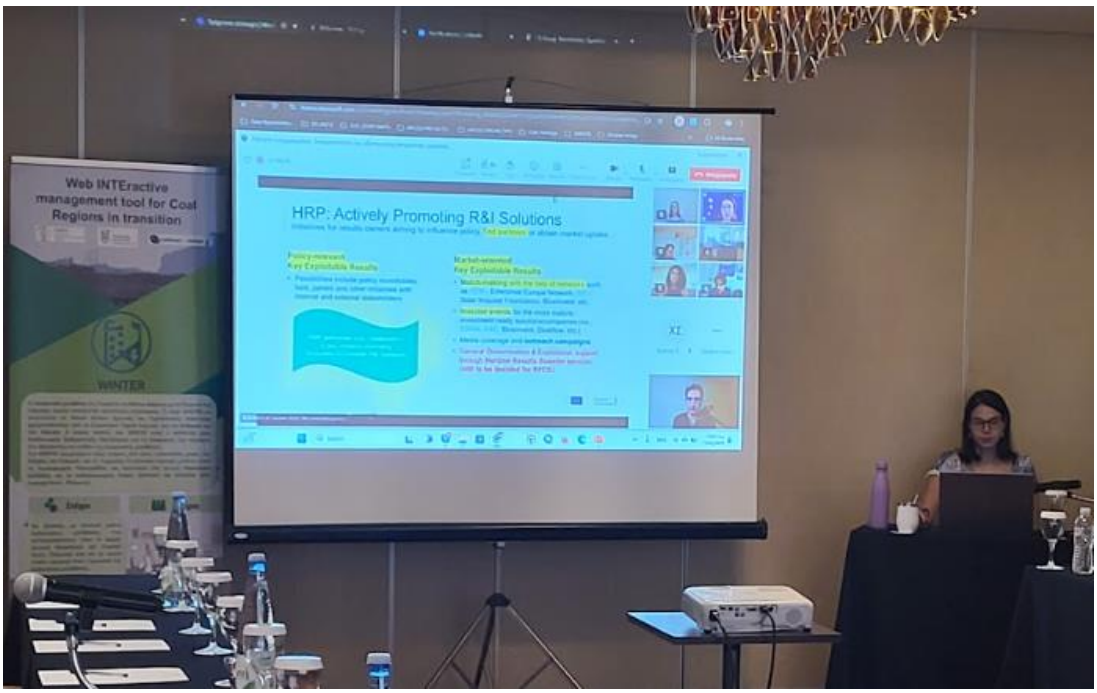

Figure 2:Horizon Results Platform presentation by Project Officer

4. OVERVIEW OF WINTER: PROJECT MANAGEMENT

CERTH provided an overview of the project's management, detailing the approach adopted to ensure smooth progress of the project and the coordination among partners. The presentation covered the project's objectives, timeline, and the methodologies employed to achieve the desired outcomes. Emphasis was placed on the interdisciplinary nature of the project, integrating environmental, socioeconomic, and technological perspectives. The effective management practices highlighted in this session were instrumental in the successful execution of the WINTER project. (Figure 3).

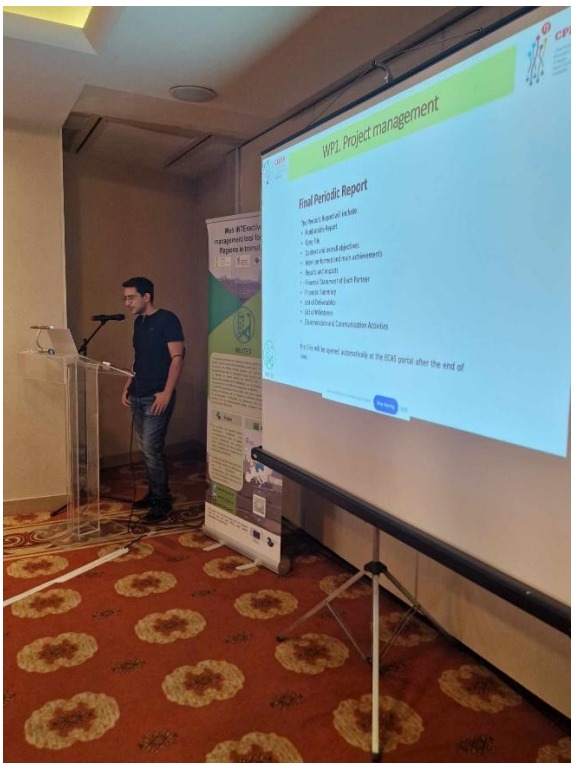

Figure 3: WP1: Management

5. RESULTS OF WP2: ENVIRONMENTAL CHALLENGES AND LAND REHABILITATION SOLUTIONS

Poltegor (AS) provided an overview of WP2. The main environmental challenges faced by coal regions in transition include: Land Degradation, Water Pollution, Air Pollution, Landscape Changes, Rehabilitation Challenges. By addressing these challenges through effective land rehabilitation and transition scenarios, coal regions can move towards a more sustainable future.

Best available technologies are being utilized for land rehabilitation and reclamation in coal mining regions undergoing transition. These technologies play a crucial role in restoring ecosystems, mitigating environmental challenges, and promoting sustainable land use. Here are some key points on how these technologies are being applied:

1. **BAT Guide**: A Best Available Technologies (BAT) guide has been developed as a resource for identifying and implementing the most effective technologies and practices for land rehabilitation and reclamation projects.
2. **Combining Technologies**: Various technologies are being combined to create successful rehabilitation projects, ensuring comprehensive restoration of post-mining areas.
3. **Spatiotemporal Analysis**: Spatiotemporal evaluation of satellite and aerial photos is being conducted to detect changes in spatial and urban planning, as well as to identify renewable energy utilization options such as geothermal, wind, and solar energy.

4. **Lessons learnt from Successful Models**: Lessons learned from successful post-mining land use models, such as those in the Ruhr region, are being studied to guide the application of technologies in coal regions undergoing transition.

Figure 4: WP2 Environmental challenges of coal regions in transition and land rehabilitation solutions

Deliverable 2.3 which involves the production of a report on spatiotemporal evaluation and transition scenarios for coal mining regions was analyzed. The main objective was to provide a comprehensive analysis of spatiotemporal changes in coal mining regions and to develop transition scenarios that guide sustainable regional development and land use planning.

- **Subtasks**

  Subtasks 2.3.1, 2.3.2 (presented by AK): Spatiotemporal evolution and suitable transition scenarios

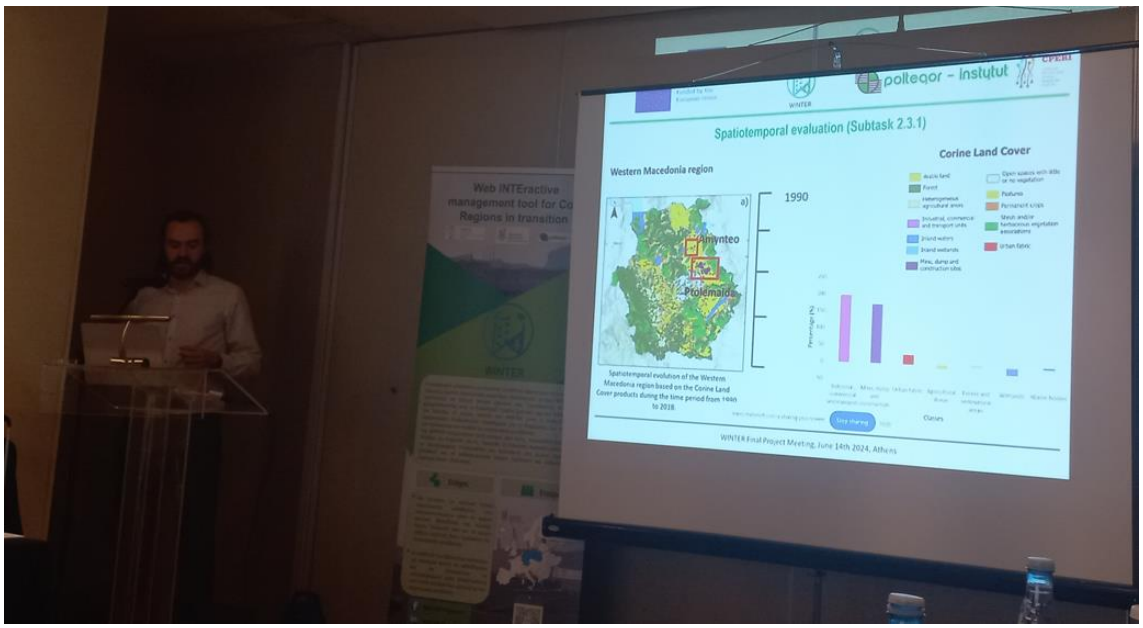

Figure 5: Spatiotemporal evaluation

- Spatiotemporal evolution and suitable transition scenarios

In the presented slides, partners from CERTH highlighted the results of each country regarding their spatiotemporal evolution (subtask 2.3.1) at regional level from 1990 to 2018 using the Corine Land Cover (CLC) (Figure 6) products, and at mining level from 2018 to 2021 using land cover products created by the Machine Learning approach (Figure 7).

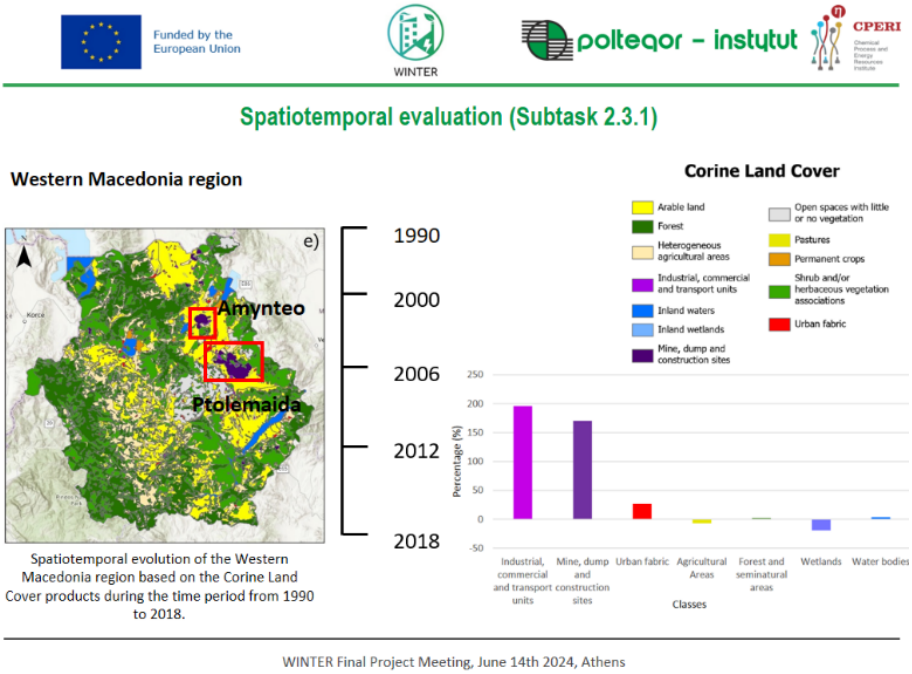

Figure 6: Screenshot of the spatiotemporal evolution based on the Corine Land Cover products during the time period 1990 – 2018 in Western Macedonia region, Greece

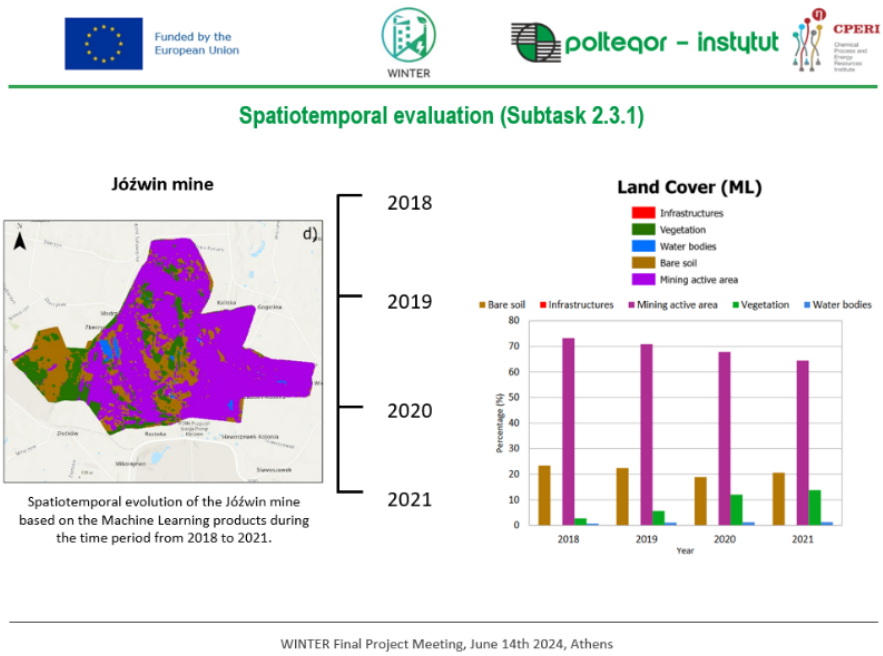

Figure 7: Screenshot of the spatiotemporal evolution based on the Land Cover products (Machine Learning approach) during the time period 2018 – 2021 in the Jóźwin mine, Poland

These results were visualized using maps and charts that depicted the evolution of each land cover coverage in percentages for the aforementioned years. Following the subtask 2.3.2, they presented the results of the scenarios for the installation of Renewable Energy Sources. In these results, they presented the criteria, where the scenarios were based, and then showed the maps (Figure 8) of the results indicating the potentially suitable areas for the installation of photovoltaic and wind parks, as well as the areas where there is overlap between these two types. Alongside the maps, they also presented the coverage percentages for each scenario.

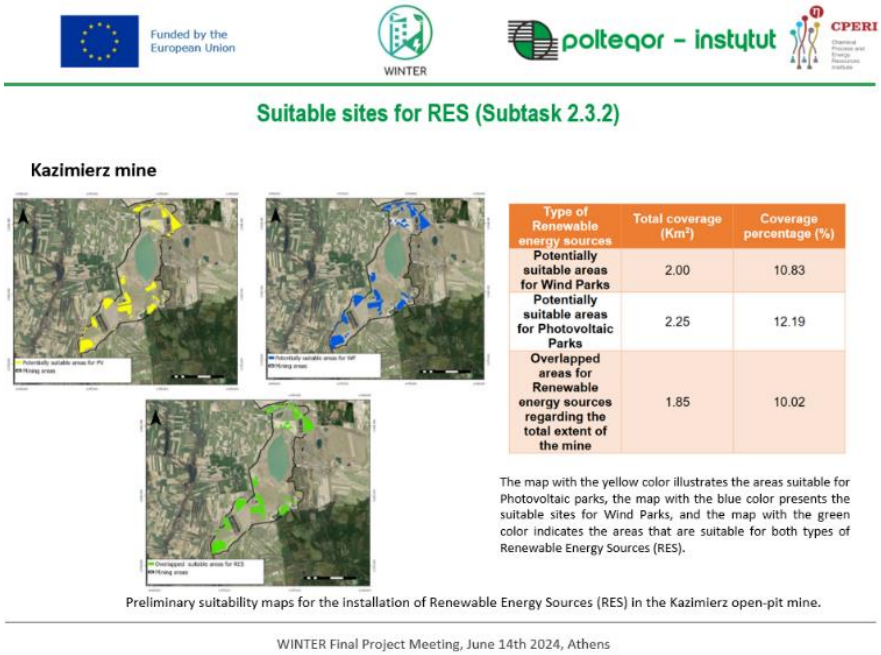

Figure 8: Screenshot of the implemented scenarios for the installation of Renewable Energy Sources in the Kazimierz mine, Poland

Assessment of Proposed Scenarios: The results of the spatiotemporal evaluation were used to assess proposed scenarios for the transition of coal mining regions via transition decision matrix (Figure 9)

Scenarios for the Coal Mining Regions: Poltegor presented transition scenarios based on the assessment of proposed scenarios (Figure 10) and the identification of renewable energy utilization options.

TRANSFORMATION DIRECTION	CRITERIA						OVERALL FEASIBILITY
	ECONOMIC VIABILITY	ENVIRONMENTAL IMPACT	SOCIAL ACCEPTANCE AND STAKEHOLDER SUPPORT	TECHNOLOGICAL FEASIBILITY	SUSTAINABILITY	REGULATORY & LEGAL CONSIDERATIONS	
NATURAL RESTORATION	√/X	...	...	...	...	...	Assessment
CULTURAL HERITAGE DEVELOPMENT	√/X	...	...	...	...	...	Assessment
COMMERCIAL RECONVERSION	√/X	...	...	...	...	...	Assessment
RENEWABLE ENERGY INTEGRATION	√/X	...	...	...	...	...	Assessment

Figure 9: Transition scenario decision matrix

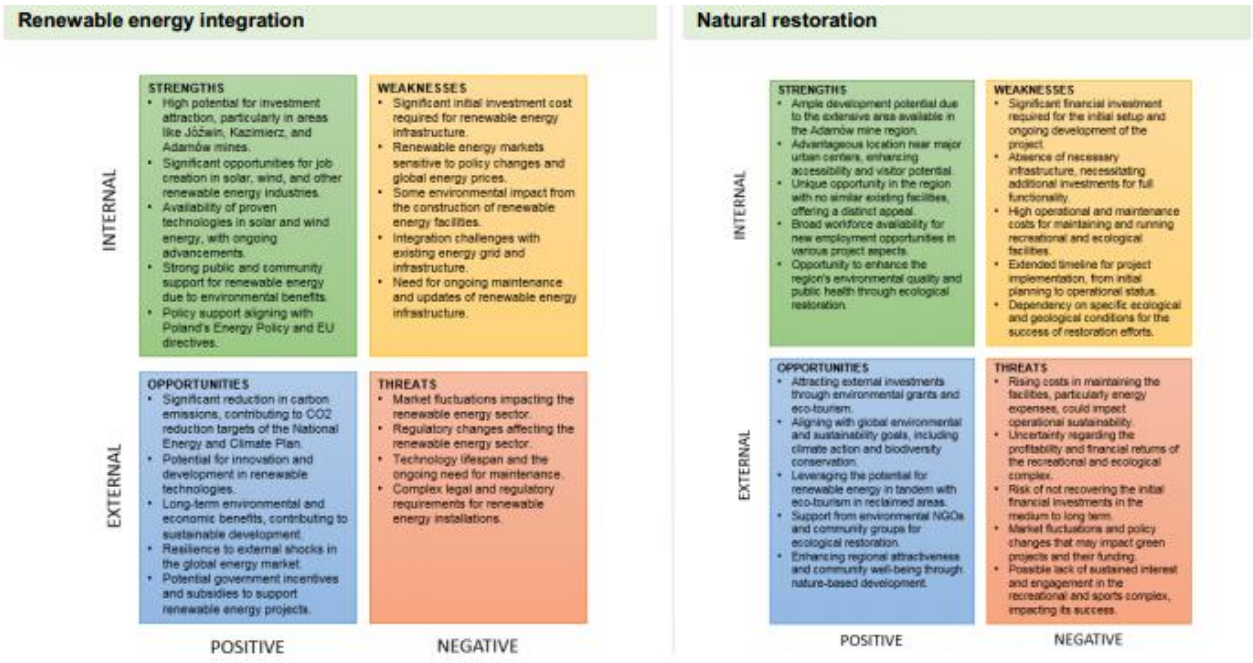

Figure 10: Assessment of proposed scenarios

6. RESULTS OF WP3: SOCIOECONOMIC AND MANAGEMENT ASPECTS OF COAL REGIONS IN TRANSITION

During the presentation of the WP3 results, DMT-THGA provided an overview of all the tasks and Deliverables of WP3. The WINTER project workflow was depicted along with the WP3 timeline. All the challenges and solutions in Media Analysis were depicted, along with the evaluation of sentiments for all partner countries. The main findings of Media Analysis that were presented were:

- Polish media entries are primarily driven by concerns about the economic and social consequences of a rapid coal phase-out. The negative tonality of the media reports inhibits a positive perception of the transition,
- In Germany, the coal phase-out affects various decision-making levels: from the European to the national and regional framework but the media discourse is shifting to national and international significance emphasizing environmental and especially climate issues.
- Inhabitants, especially the younger generation identify strongly with the local-regional area of the Ruhr region.
- Greek media support European concepts with primarily positive, appealing, or factual statements.
- Identity-forming and solidarizing representations increase with the maturity of the transition phase.
- Increasing scientific debate on new usage options provides more transparency and emphasizes the positive potential of the phase-out.
- Taking over the positive tonality of terms helps to increase the popularity of the topics.
- At the European level, the timeframe of the phase-out and managing the economic transition to renewable energy supply belong to the most frequent concerns

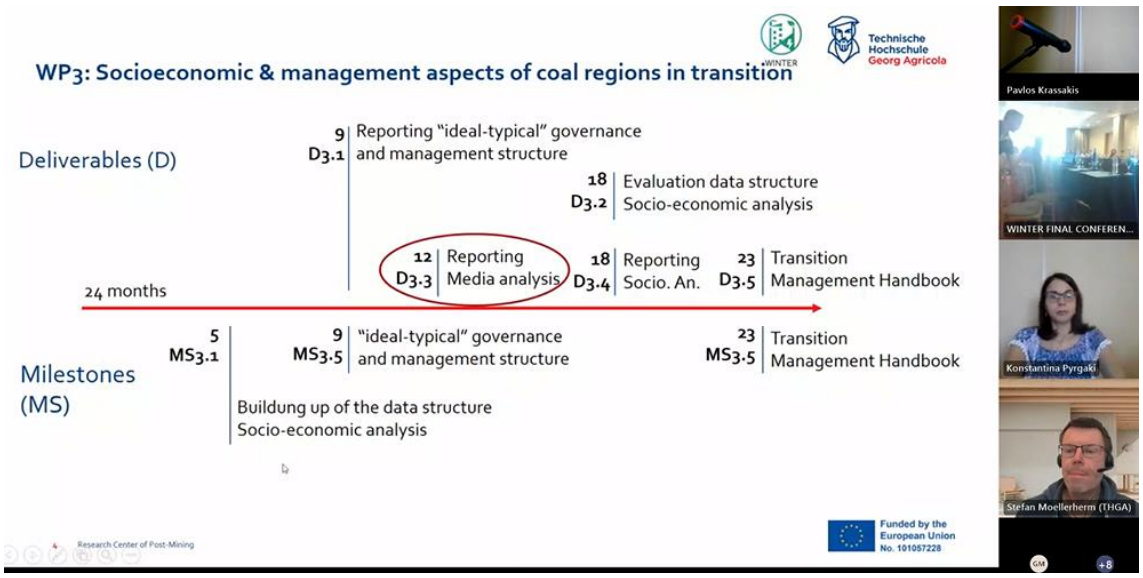

Figure 11: WP3: Socioeconomic and Management Aspects of coal Regions in Transition

Regarding the Social Acceptance report, DMT-THGA analysed the methodology and the procedures that took place during the Project's lifetime. The goals were:

- Understanding the distributional effects of energy transition
- Minimizing social disruption in the case regions
- Allocation of welfare benefits to former employees of coal mines
- Identification of available assessments about dependencies and trends
- Identification of strategic planning methods and instruments from available assessments
- Communication of the results via Webtool

Following, SM took some time to present various statistical information regarding the number and the completion rates of the participants in the Public and Stakeholders online surveys, along with some results from the Expert Stakeholder Interviews conducted through the WINTER project. At the end of his presentation, he showed the contents of the Transition Management Handbook which can serve as best practice guidelines to interested 3rd parties.

After DMT-THGA presentation, CERTH continued focusing on the Greek case study results of the Media analysis. GM analysed briefly the management structures and processes, including institutions, roles, governance, and collaborations in the transition areas of Greece. In addition, the methodology of web scraping was described that was used for the Greek regional datasets gathering. The search attributes categorization was extensively presented, while a collection of graphs for Greek search words were also described and analysed. In addition, comparative graphs for different years were also presented. At the end of his presentation, GM took some time to present some results of the Greek Public and Stakeholders Surveys. According to the results:

- Most of the participants in Greece rate negatively the efforts of the (regional) government and the municipalities to manage the transition away from coal.

- With 87.5%, the creation of new jobs was the most popular answer among the Public, regarding the most important point for the areas in transition.
- Promotion of innovative technologies for the economy, with 66.7%, was the most chosen option, regarding measures necessary for structural change.
- Online surveys and participation platforms along with Public meetings and workshops were the two most popular options in both Public and Stakeholders answers regarding ways to involve citizens in decision-making processes.

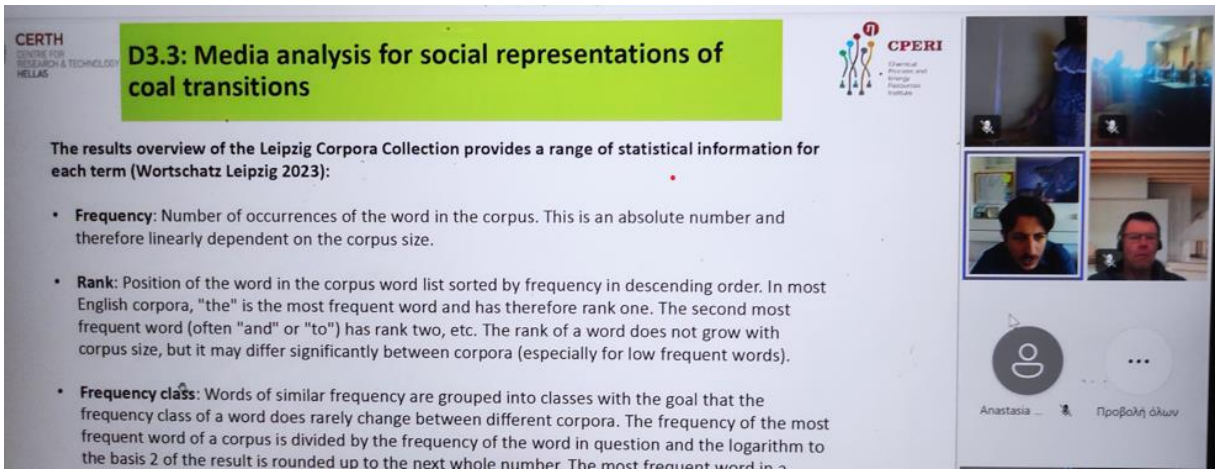

Figure 12: D3.3 Media Analysis

GM noted that the results on both online Surveys were similar, and prompted the Final Workshop participants to view all the results which can be accessed, through the Project's deliverables but also through the WINTER project's platform.

7. RESULTS OF WP4: WEB INTERACTIVE TOOL

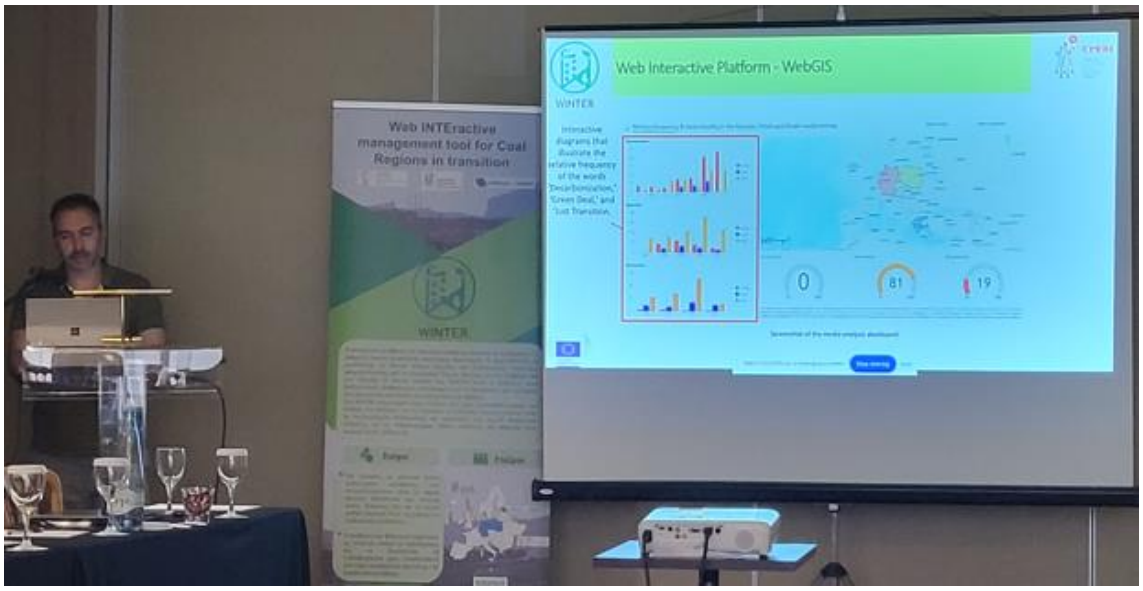

Figure 13: WP4: Web interactive tool

CERTH presented an overview of the results regarding Work Package 4. Specifically, they highlighted the actions carried out during the project, as well as the data that were collected from the other Work Packages (Figure 13).

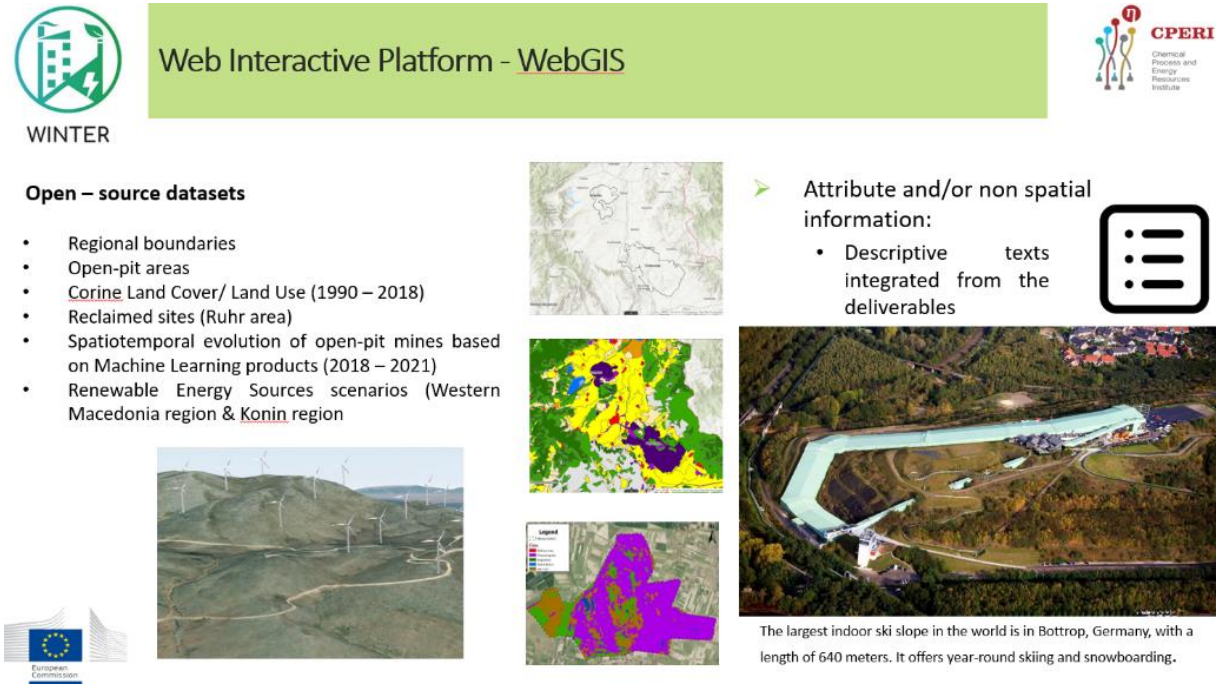

Figure 14: Screenshot of the collected and homogenized dataset from Work Packages 2 and 3

Following this, the structure of the platform was presented, which was characterized as an ecosystem that hosts 4 storytelling sections, 1 WebGIS section, and a platform guide section. During the presentation, parts of the storytelling sections were depicted (Figure 14 & 15), illustrating the geospatial products, the narrative texts, and the interactive dashboard.

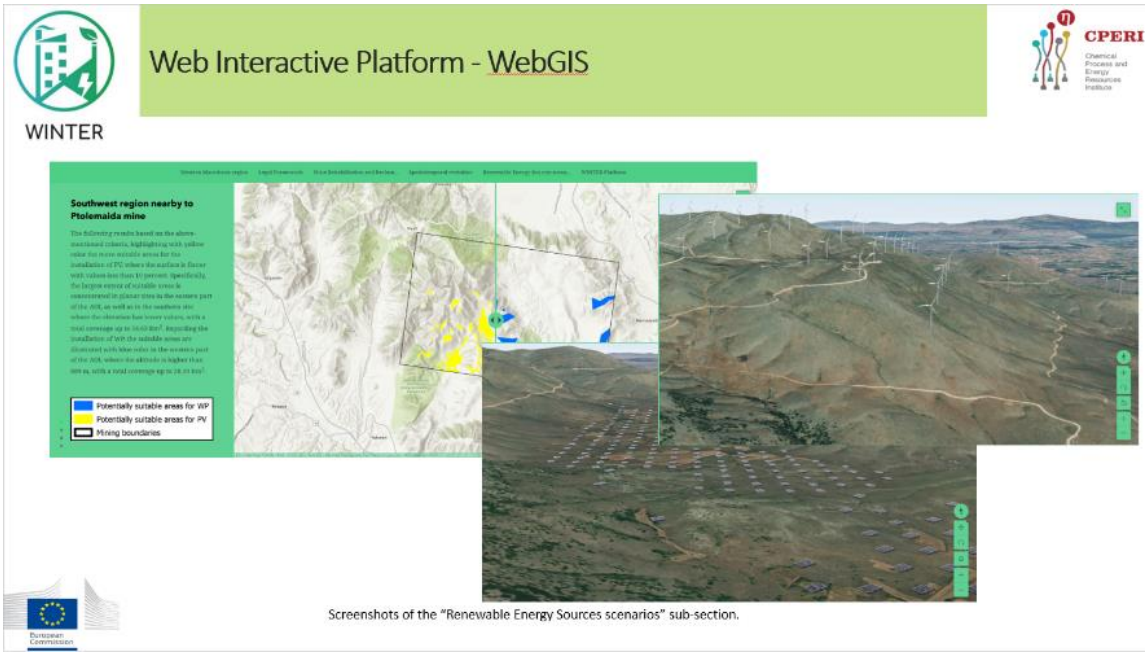

Figure 15: Screenshot of highlights from the storytelling sections depicting the 2D and 3D visualizations of Renewable Energy Sources scenarios, accompanied by narrative text.

Additionally, the section about the WebGIS platform was also presented focusing on the available geospatial layers and the platform functionalities. Furthermore, colleagues showed highlights from the implemented workshops regarding the platform and shared some of the feedback that was collected from the surveys completed by the attenders. In their final slides, they presented the platforms guide (Figure 16), which is a detailed manual with examples for users on how to use the platform.

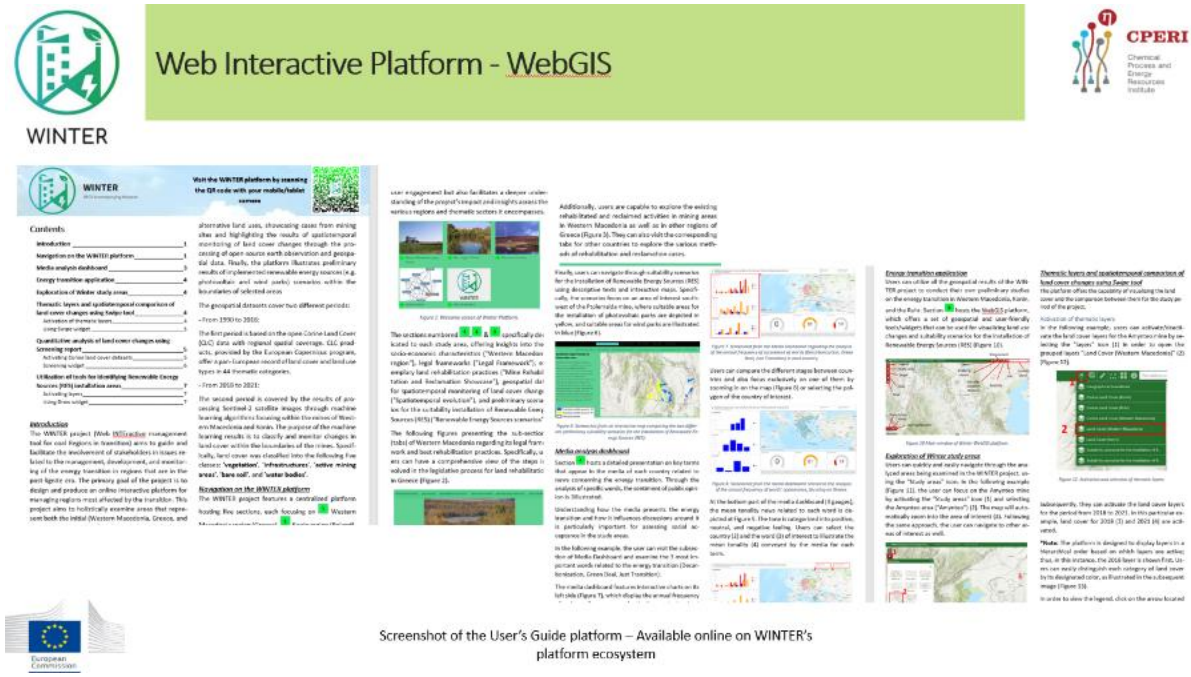

Figure 16: Screenshot of the User's Guide platform

8. RESULTS OF WP5: DISSEMINATION AND STAKEHOLDER INVOLVEMENT

Results of WP5 were presented by DMT-THGA (Figure 17), CERTH (Figure 19) and Poltegor. Dissemination activities and stakeholder involvement play a crucial role in the success of the WINTER project, promoting the sharing of knowledge, engaging key stakeholders, and upgrading the adoption of sustainable practices in coal mining regions in transition.

Figure 17: WP5: Dissemination and stakeholder involvement

WINTER Workshop in Bochum (Figure 18) aimed at introducing the new platform and promoting dialogue between stakeholders. Stakeholders from various European countries, including Finland, Spain, Poland, Serbia, and Ukraine, gathered at THGA University. A detailed questionnaire was distributed to collect structured feedback from the stakeholders, ensuring that all voices were heard and considered in the project's future.

Figure 18: Stakeholder involvement in Germany

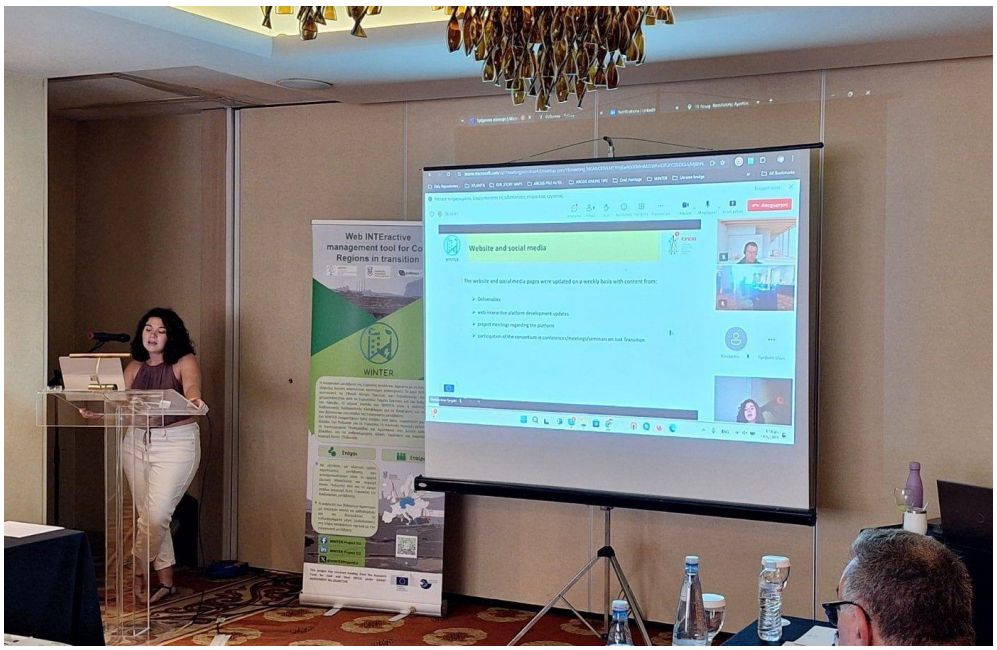

Figure 19: Dissemination actions and WINTER site

CERTH presented an update on the communication and dissemination actions of the Web INTEractive management tool for coal Regions in Transition project. The website and social media pages had been regularly updated with project developments, conference presentations, and collaborations with other projects. EZ also showed social media accounts' overview and analytics, most popular content, conferences' presentations and publications from CERTH. (Table 1)

WINTER Workshop in Athens (Figure 20) brought together a wide group of stakeholders, including representatives from regional governments, METAVASI S.A., universities, research organizations and the local community, to show the Web Interactive Platform –WebGIS exchange ideas and future suggestions.

Date: May 24th, Athens
Participants: Wide group of stakeholders, including representatives from METAVASI S.A., local and regional governments, universities

Figure 20: WINTER Workshop in Athens

Poltegor (presented by AS) continued the presentation showing stakeholder engagement in Konin and Poltegor presentations and publications (Table 1)

WP5: STAKEHOLDER INVOLVEMENT

WINTER Workshop in Konin

- **Purpose:** Capture stakeholders' feedback on the WINTER tool
- **Date and Location:** May 24th, Konin
- **Event Context:** Meeting of the Subcommittee for Eastern Wielkopolska
- **Focus:** Discussed regional transformation challenges.
- **Participants:** Wide group of stakeholders, including representatives from local and regional governments, local environmental NGOs, representatives of the Konin mine trade unions, and the local community.

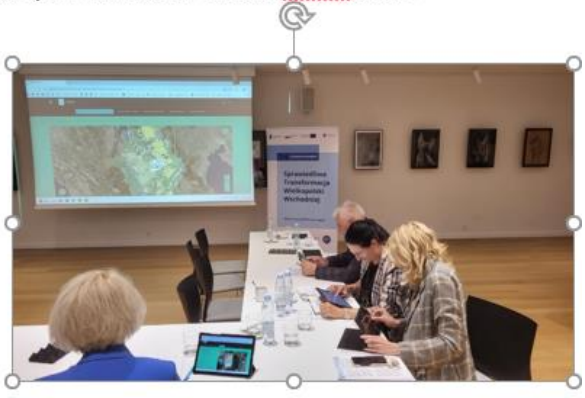

Figure 21: WINTER Workshop in Konin

WINTER Workshop in Konin (Figure 21) brought together a diverse group of participants, including representatives from local and regional governments, environmental NGOs, mine trade unions, and the local community, to exchange ideas and perspectives on post-mining land use.

Table 4: Publications- Conferences- Events

CERTH	Poster presentation at the 13th International Symposium on Digital Earth (ISDE 2023), held on 11th - 14th July 2023 at Harokopio University in Athens, Greece
	Poster presentation at EGU24, Vienna, Austria (14-19 April 2024) titled “Spatiotemporal evolution and renewable energy potential in coal regions in transition”
	Presentation at the CINTRAN Regional Stakeholder Workshop on 20 October 2023 in Kozani, Greece
	WINTER platform featured by Marathon Data Systems (MDS), the sole distributor of Esri in Greece
POLTEGOR	B. Rogosz, J. Szczepiński, A. Szwaja, A. Bajcar, „Project WINTER – Web INTEractive management tool for coal Regions in transition – aims and assumptions”, Brown Coal Mining Congress, conference materials
	B. Rogosz, J. Szczepiński, A. Szwaja, A. Bajcar, Projekt WINTER „Interaktywne narzędzie internetowe do zarządzania dla regionów węglowych w okresie przejściowym”, "Węgiel Brunatny" 2023, nr 1/122 – (https://ppwb.org.pl/Static/upload/File/wegiel_brunatny_122.pdf), pages 30-33
	A. Szwaja, B. Rogosz, J. Szczepiński, A. Bajcar, K. Pyrgaki , P. Krassakis , A. Karavias, Projekt WINTER: Integracja technologii geoprzestrzennej na rzecz zrównoważonej transformacji energetycznej w regionach węglowych, Górnictwo krywkowe2024; LXV(1): 4-13, DOI: 10.5604/01.3001.0054.5171
	The 11th International Brown Coal Mining Congress, Bełchatów, Poland, 17-19.04, 2023
	X Szkoła Górnictwa Odkrywkowego, Wisła, Poland, 4-6.09.2023
	XXIV Seminar from the series Methodology of identifying and documenting mineral deposits and geological maintenance of mines, Korytnica, Poland, 04-07.06, 2024
	4th Polish Geological Congress, Poznań, Poland 10-14.06.2024
DMT-THGA	Cebula , L.; Kasperidus, L.; Haske, J.; Bruggemann, J.; Pyrgaki, K.; Zarogiannis, T.; ZygouriI, E.; Batsi, A.; Krassakis, P.; Karavias, A.; Koukouzas, N.; Szwaja, A.; Rogosz, B. (2023): Regionales Webtool zum Managen von europäischen Kohleregionen im Wandel – Statusbericht zum EU-Projekt WINTER. In: BOCK, M.; GOERKE-MALLET, P.; MELCHERS, Ch.; RUDOLPH, T.; WESTERMANN, S. (Eds.): 21. Altbergbaukolloquium. 9. und 10. November 2023, Technische Hochschule Georg Agricola Bochum. Bochum: Selbstverlag der Technischen Hochschule Georg Agricola, S.42-49. Online: https://thga.sciebo.de/s/j10HynlJr952Jo1

9. DISCUSSION & MEETING CLOSING

The WINTER final conference meeting closed, considering WINTER a small but strong project with success in fostering collaboration and dialogue among partners and stakeholders.

A follow-up project focusing on the practical implementation and testing of the platform across different regions was suggested. This project would involve pilot programs in participating countries, with current data and further refinement of the platform based on user experiences and feedback.