
**Report on creating a West Balkan Mineral
Register on SRM data (D5.3)**

**Version 2.0
4 | 2021**

DOCUMENT CHANGE LOG

Document Issue.	Date	Reasons for change
Version 1.0	18.11.2020	Initial version of the document
Version 2.0	01.04.2021	Proof-read version

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1. INTRODUCTION

The RESEERVE project is a Regional Innovation Scheme (RIS) project, related to the EC/EIT objectives for regional innovation development that target the following six countries of the South East European (SEE) region: Croatia, Bosnia and Herzegovina, Serbia, Montenegro, North Macedonia, and Albania.

Primary and secondary mineral raw materials are of strategic importance for the EU. Most EU countries are already part of the **pan-European Minerals Intelligence Network** which provides continental-level, consistent and organised mineral data information on primary and secondary mineral resources. The **SEE region represents a gap in this network**. In the years following the project, the results will represent a platform for ESEE regional integration into the pan-European Mineral Intelligence Network and into the common European mineral market.

The project's goals:

- Mapping the mineral resources of the six SEE countries: Croatia, Bosnia and Herzegovina, Serbia, Montenegro, North Macedonia, and Albania, most of which are currently not included in the existing data platforms.
- Creating the network of partners to determine available and further needed information on primary and secondary mineral resources data in West Balkan countries.
- Increasing the capacity of task partner countries for national mineral management.
- Ensuring a sufficient flow of information for Europe's industry as well as large trans-national concerns to expand their business and investments in the SEE region.
- Disseminating the knowledge and know-how of the EIT Community and developing new markets for modern technologies, creating opportunities for start-ups and SMEs, contributing to new job opportunities, and generating economic added value.
- Community building within and between regions, creation of local ecosystems, as well as enabling new education and research.

This report, which represents Deliverable D5.3, is focused on describing the process of creating and visualising SRM data for Croatia, Bosnia and Herzegovina, Serbia, Montenegro, North Macedonia, and Albania. The deliverable focuses on the creation process of the common "West Balkan Mineral Register for SRM data".

2. SRM ATTRIBUTE TABLE DEFINITION

At the beginning of the data collection process for the purpose of creating the register, five groups of data were defined: Deposit location data, Deposit origin, Deposit technological information in Geological and Environmental information, according to potential investment needs and West Balkan national mineral management needs gathered by TPs and in line with the INSPIRE directive.

Deposit location data consists of the following five variables: ID, Location, Country, Longitude and Latitude.

ID	Identifier number
Location	Name
Country	Bosnia and Herzegovina (BiH/RS), Croatia, Montenegro, North Macedonia, and Serbia
Longitude	Geographic longitude (WGS84)
Latitude	Geographic latitude (WGS84)

Deposit origin consists of the following five variables: Mine, Processing Facility, Activities, Status, Last Manager.

Mine	Name/Location
Processing Facility	Name/Location
Activities	Description of Mining and Processing activities, (Underground and Open pit exploitation, Ore processing, Flotation processing, Smelting and Metallurgical processing)
Status	Mining and Processing status (Operating/Closed)
Last Manager	Name

Deposit technological information consists of the following seven variables: Deposit Type, Deposition Period, Main element, Storage, Surface, Volume/Weight and Deposit status

Deposit Type	Mining Waste Landfill, Processing Waste Landfill (Flotation Tailings, Red Mud Dam), Slag Landfill (Ironworks, Smelter)
Deposition Period	Period of operation (From - To)
Main element	Mine exploited element
Storage	Surface/Underground
Surface	Surface in ha
Volume/Weight	Volume in Mm ³ and Weight in Mt
Deposit status	Active/Closed/Abandoned

Geological and Environmental information consists of the following four variables: Geological and Chemical composition, Restoration and Environmental impact.

Geological composition	Description
Chemical composition	Description
Environmental impact	Description
Restoration	Yes/No

3. COLLECTING SRM NATIONAL DATA

3.1. COLLECTING SRM NATIONAL DATA (INITIAL PHASE)

Under national mineral/mining legislation, in most cases TPs are responsible for partial/all data needed for SRM mineral register creation and other data collected from authorised national authorities.

In the first phase, data were collected according to the given parameters.

The data collected proved to be very general and unreliable as they referred to the side burden generated in metal processing processes. This is the difference between SRM and PRM as the data on the latter is quite accurate. There were the following problems or ambiguities: (1) inaccurate, imprecise, or unverified coordinates; (2) generalised data and estimates; (3) general lack of data.

We periodically reviewed datasets and corrected errors with each task partner. In the first phase, data were collected on 123 sites.

The first phase of data collection was completed in the first half of 2019. Verifications and field visits to key SRM sites were required.

3.2. SRM FIELD SITE VISIT AND SAMPLE COLLECTING

During the second phase, a field survey was conducted and samples were collected from the 25 most promising sites in Bosnia and Herzegovina, Montenegro, North Macedonia, and Serbia. At the same time, 52 SRM samples were collected.

Within the RESEERVE and RIS-RECOVER projects, a field survey of perspective sites and collection of samples from flotation material deposits (Bučim - Cu, Probištip - Pb-Zn, Toranica - Pb-Zn, Sasa - Pb-Zn and Lojane - Sb) and metallurgical residues (Veles - Pb-Zn, FeNi - Kavadarci and Ferohrom-Jegunovce - Fe-Cr) was carried out in the area of North Macedonia from 17.07.2018 to 03.08.2018. Rough preparation and archiving of the sample materials were also carried out. In the period from 1 May 2019 to 4 May 2019 additional sampling and sample preparation was carried out for the needs of the project partners.

A field survey and sampling, as well as the rough preparation of samples for the needs of the project partners (MUL) were carried out in the territory of Serbia from 5 May 2019 to 12 May 2019. Field and laboratory work was carried out in cooperation with project partners from the University of Belgrade - Faculty of Technology Bor (Radoje Pantić) and the Faculty of Mining and Geology, Belgrade (Ivica Ristović) at the following locations: Bor - Cu (flotation landfill, new flotation landfill, metallurgical

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landfill slag) Krivelj - Cu (flotation landfill), Grotto - Pb-Zn (flotation landfill), Lece - Pb-Zn-Au (flotation landfill), Mine - Pb-Zn (flotation landfill), Mine - Pb-Zn-Ag flotation), Zajača - Pb-Sb (metallurgical residues landfill) and Smederevo - (iron and steel residues landfill).

In the territory of Montenegro a field visit to promising sites and the collection of samples for the needs of the project partners in RESEERVE was carried out from 22 July to 3 August 2019. Field and laboratory work was carried out in cooperation with the staff of the Institute for Geological Research, Podgorica (Slobodan Radusinović) at the following sites: Podgorica (red mud landfill), Nikšić (iron-steel waste landfill) and Gradac - Pb-Zn (flotation waste landfill).

The field inspection and sampling were also conducted in the territory of Bosnia and Herzegovina from 22 July 2019 to 3 August 2019 at the following sites: Sase-Srebrenica - Pb-Zn (flotation landfill), Veovča - Pb-Zn-Ba-Ag (flotation landfill), Birač / Đulići (red mud landfill), Dobro Selo (red mud landfill) and Zenica (scrap iron-steel landfill). Basic laboratory preparation and transport of the sample material were also carried out. The field /laboratory work was carried out in cooperation with the project partners Evica Golić, Spasoje Glavaš (Republic Institute for Geological Research - Republika Srpska), Ismir Hajdarević and Hazim Hrvatović (Institute for Geological Research of the Federation of Bosnia and Herzegovina).



Figure 1. Field survey and SRM sampling sites

3.3. COLLECTING SRM NATIONAL DATA (FINAL PHASE)

Fieldwork and visits to all mentioned sites had been carefully planned, consultation with experts from every country as well as study of all relevant data and maps had been performed. The main findings were:

- That most of the old SRM landfills are abandoned and forgotten. Only a few of the latest landfills are exemplary, with plenty of documentation.
- That there are not one but several separate SRM landfills at individually-important locations, especially those that are still active. These are chemically very different from each other due to changes in technological processes in the past.
- The morphology and albedo of SRM landfills have been determined, enabling the later use of remote sensing methods.

Data collection for the second phase was carried out using remote sensing methods in combination with verification on already existing databases:

- <https://land.copernicus.eu/pan-european/>. Copernicus is a European programme for monitoring the Earth, in which data is collected by Earth observation satellites and combined with observation data from sensor networks on the Earth's surface. The Copernicus Land Monitoring Service (CLMS) provides geographical information on land cover to a broad range of users in the field of environmental terrestrial applications. This includes land use, land cover characteristics and changes, vegetation state, water cycle, and Earth surface energy variables.
- **Google Earth Pro** is a computer program, formerly known as Keyhole EarthViewer, that renders a 3D representation of the Earth based primarily on satellite imagery. The program maps the Earth by superimposing satellite images, aerial photography, and GIS data onto a 3D globe, allowing users to see cities and landscapes from various angles. Users can explore the globe by entering addresses and coordinates, or by using a keyboard or mouse. The program can also be downloaded on a smartphone or tablet, using a touch screen or stylus to navigate. Users may use the program to add their own data using Keyhole Markup Language and upload these through various sources, such as forums or blogs.
- <https://www.usgs.gov/centers/nmic/europe-and-central-eurasia/> Area Reports-International-Europe and Central Eurasia. These annual reviews are designed to provide timely statistical data on mineral commodities in various countries. Each report includes sections on government policies and programmes, environmental issues, trade and production data, industry structure and ownership, commodity sector developments, infrastructure, and a summary outlook. Data from the Mineral Industries of the Southern Balkans — Albania (1994-2018), Bosnia and Herzegovina (1994-2018), Croatia (1994-2018), Montenegro (2007-2018), North Macedonia (1994-2018), and Serbia (2007-2016) were used.
- <https://www.mindat.org/>. Mindat.org has been collecting, organising, and sharing mineral information since October 2000. It is now an essential resource used daily throughout education, academia, and industry. Mindat.org is the world's leading authority on minerals and their localities, deposits, and mines worldwide. Mindat.org's mission is to advance the world's understanding of minerals.

- <https://thediggings.com/>. The Diggings™ lists millions of claims across the United States to help identify where gold, silver, copper, and other materials are being mined or were mined in the past. With our interactive maps, discover mining activity in your area. The Diggings™ is a resource for locating where mining claims are and have been. Discover mining activity in your area and find new regions of opportunity.
- <http://www.euromines.org/mining-europe/>. Euromines is the recognised representative of the European metals and minerals mining industry. The association's main objective is to promote the industry and to maintain relations with European institutions at all levels. Euromines provides services to its members regarding EU policy and serves as a network for cooperation and for the exchange of information throughout the sector within Europe. The association also fosters contacts with the mining community throughout the world.
- <http://www.europe-geology.eu/mineral-resources/>. Since the publication of the Raw Materials Initiative (RMI) in 2008 and the Strategic Implementation Plan of the European Innovation Partnership on Raw Materials (SIP EIP RM), the European Commission has funded research on raw materials through its research and innovation framework programmes (FP7 and H2020), as well as through specific research requests from individual Directorates and other mechanisms. Several of the projects have involved, to a greater or lesser extent, the creation of pan-European mineral datasets. At present, especially data from the Minerals4EU and ProMine projects are included in the EGDI, but eventually also data from projects such as EURare, ProSum, and others will be sustained through the infrastructure.

Given the unreliability of the data collected in the first collection phase, we retained in the second phase only data with high reliability, also verified on GoogleEarth (historical imagery):

ID	Identifier number
Location	Name
Country	Bosnia and Herzegovina (BiH/RS), Croatia, Montenegro, North Macedonia, and Serbia
Longitude	Geographical longitude (WGS84)
Latitude	Geographical latitude (WGS84)
Deposit Type	Mining Waste Landfill, Processing Waste Landfill (Flotation Tailings, Red Mud Dam), Slag Landfill (Ironworks, Smelter)
Main element	Mine exploited element
Surface	Surface in ha

We regularly reviewed the datasets and corrected errors with each task partner. In the final phase data was collected from 1,650 sites. The second phase of data collection was completed at the end of 2020. The collected data are presented in the GoogleEarth SRM application as well as on the web link of the RESEERVE project official website: (<https://reserve.front-lab.net/results/west-balkan-mineral-register-of-secondary-raw-materials>). The following table shows the statistics collected and the SRM sites.

Table 1. Distribution of SRM deposit locations and areas according to main extracted metal

Type		Locations (N)	Area (ha)	Area (%)
SRM		1650	6456	
Mining Waste Landfills		1540	3568	55
Processing Waste Landfills		66	2322	36
Metallurgical Slag Landfills		44	566	9
Type	Element	Locations (N)	Area (ha)	Area (%)
Mining Waste Landfills	Cu	64	1309	37
Mining Waste Landfills	Fe-Mn	37	720	20
Mining Waste Landfills	Al	303	705	20
Mining Waste Landfills	Ni	190	280	8
Mining Waste Landfills	Cr	771	272	8
Mining Waste Landfills	Pb-Zn	146	266	7
Mining Waste Landfills	Sb	29	16	0
Processing Waste Landfills	Cu	18	1285	55
Processing Waste Landfills	Pb-Zn	32	565	24
Processing Waste Landfills	Al	4	240	10
Processing Waste Landfills	Fe-Mn	4	196	8
Processing Waste Landfills	Cr	2	34	1
Processing Waste Landfills	Sb	2	3	0
Metallurgical Slag Landfills	Fe	18	228	40
Metallurgical Slag Landfills	Cu	9	149	26
Metallurgical Slag Landfills	Ni	7	83	15
Metallurgical Slag Landfills	Cr	5	53	9
Metallurgical Slag Landfills	Pb-Zn	4	49	9
Metallurgical Slag Landfills	Sb	1	5	1

Table 2. Distribution of SRM deposit locations and areas according to country

Type	State	Locations (N)	Area (ha)	Area (%)
SRM		1650	6456	
Mining Waste Landfills		1540	3568	55
Processing Waste Landfills		66	2322	36
Metallurgical Slag Landfills		44	566	9
Type	State	Locations (N)	Area (ha)	Area (%)
Mining Waste Landfills	Serbia	48	1042	29
Mining Waste Landfills	Bosnia & Herzegovina	260	873	24
Mining Waste Landfills	North Macedonia	134	606	17
Mining Waste Landfills	Albania	851	395	11
Mining Waste Landfills	Kosovo*	170	261	7
Mining Waste Landfills	Montenegro	24	254	7
Mining Waste Landfills	Croatia	53	137	4
Processing Waste Landfills	Serbia	15	1090	47
Processing Waste Landfills	North Macedonia	10	408	18
Processing Waste Landfills	Bosnia & Herzegovina	12	384	17
Processing Waste Landfills	Kosovo*	12	215	9
Processing Waste Landfills	Montenegro	4	112	5
Processing Waste Landfills	Albania	12	81	3

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Processing Waste Landfills	Croatia	1	31	1
Metallurgical Slag Landfills	Serbia	9	178	31
Metallurgical Slag Landfills	North Macedonia	8	88	16
Metallurgical Slag Landfills	Bosnia & Herzegovina	10	88	16
Metallurgical Slag Landfills	Kosovo*	5	70	12
Metallurgical Slag Landfills	Montenegro	5	53	9
Metallurgical Slag Landfills	Albania	4	52	9
Metallurgical Slag Landfills	Croatia	3	37	7



Figure 2. Mining Waste Landfills-Bauxite open pits



Figure 3. Mining Waste Landfills-Chromium and Nickel mines and open pits



Figure 4. Mining Waste Landfills-Copper mines and open pits

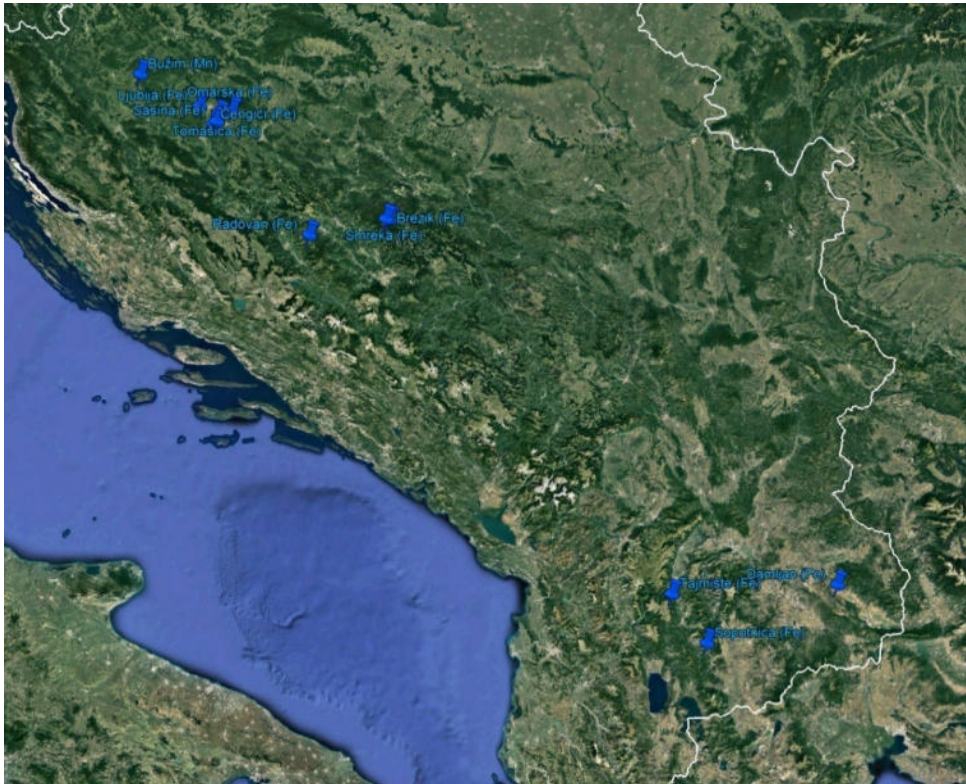


Figure 5. Mining Waste Landfills-Iron open pits

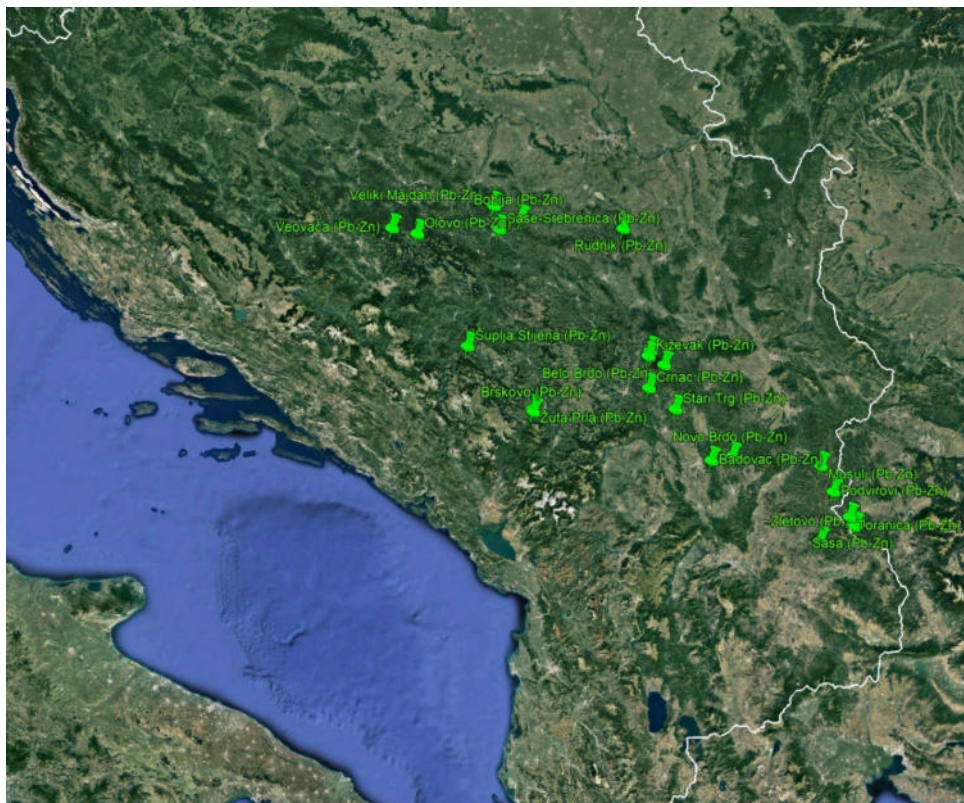


Figure 6. Mining Waste Landfills-Pb-Zn-Ag-Au mines



Figure 7. Mining Waste Landfills-Antimony mines



Figure 8. Processing Waste Landfills-Rest of Al-Cr-Ni-Fe-Mn concentrate production

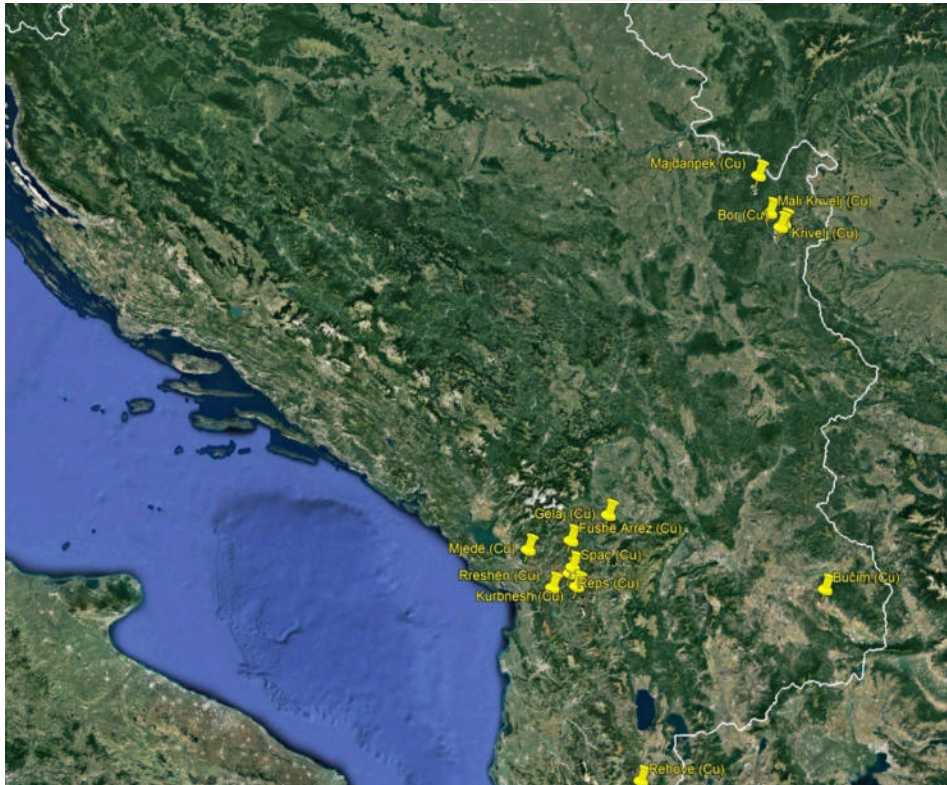


Figure 9. Processing Waste Landfills-Cu flotation tailings



Figure 10. Processing Waste Landfills-Pb-Zn-Ag-Au-Sb flotation tailings

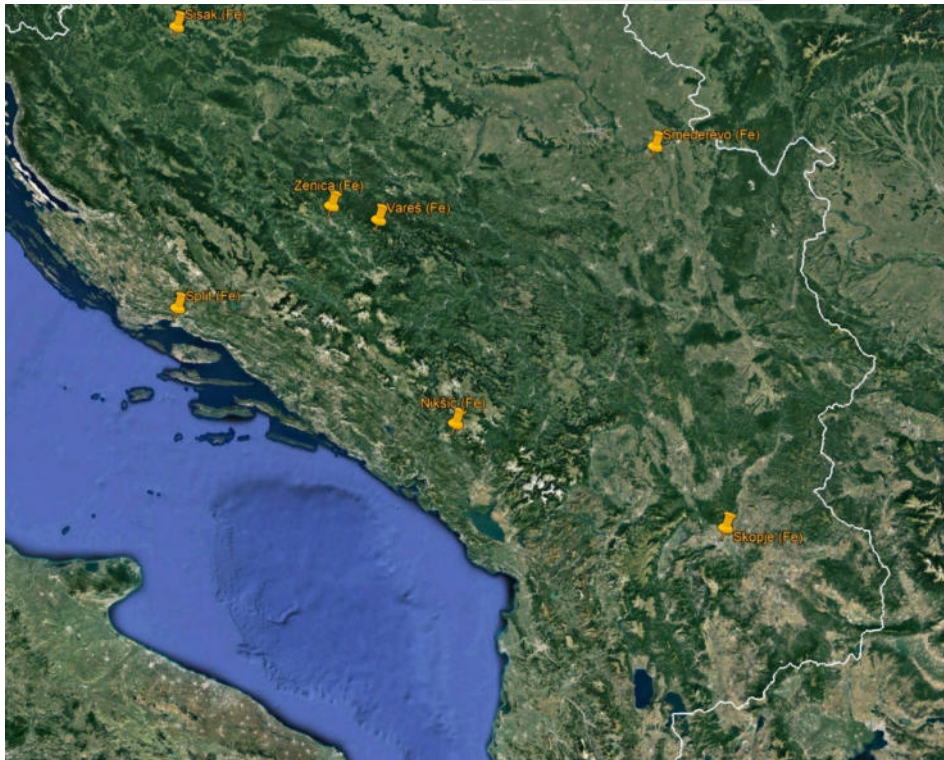


Figure 11. Slag landfills-Ironworks

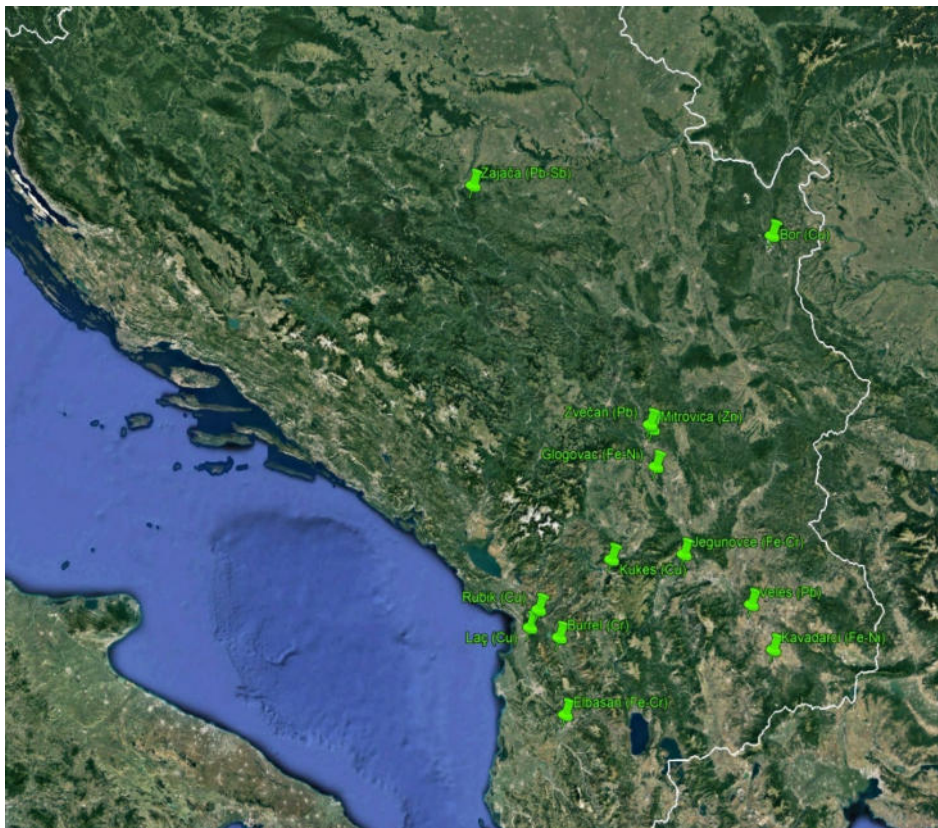


Figure 12. Slag Landfills-smelters

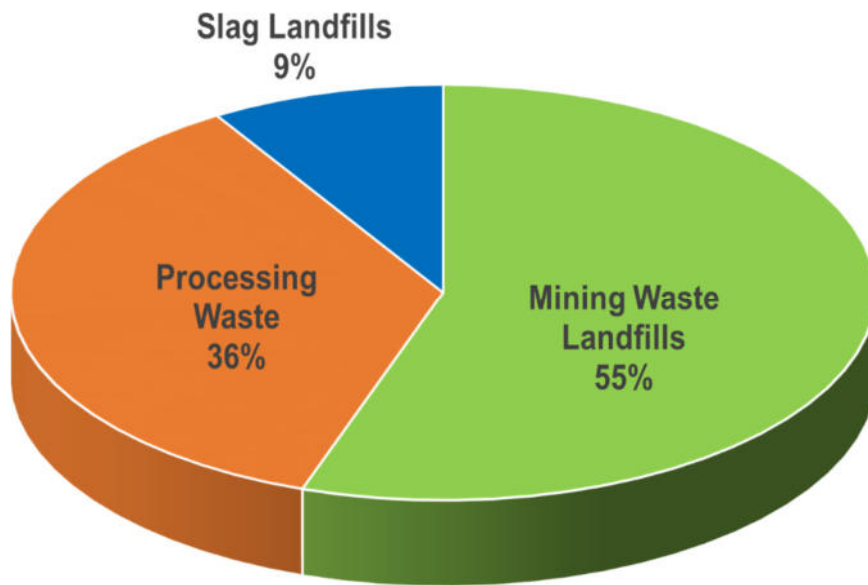


Figure 13. Areal distribution of SRM according to deposit type

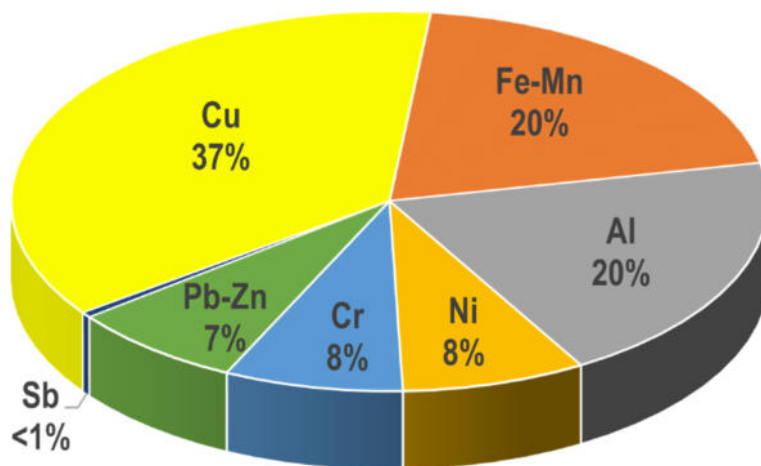


Figure 14. Areal distribution of Mining Waste Landfills according to main extracted metal

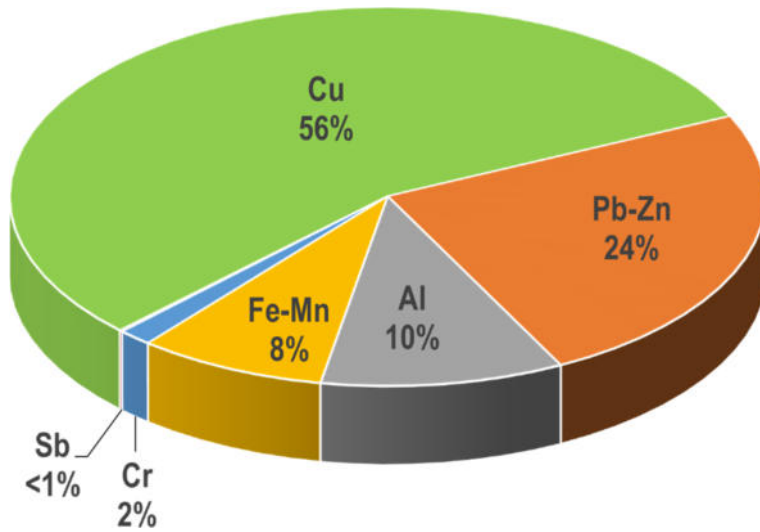


Figure 15. Areal distributions of Processing Waste Landfills according to main extracted metal

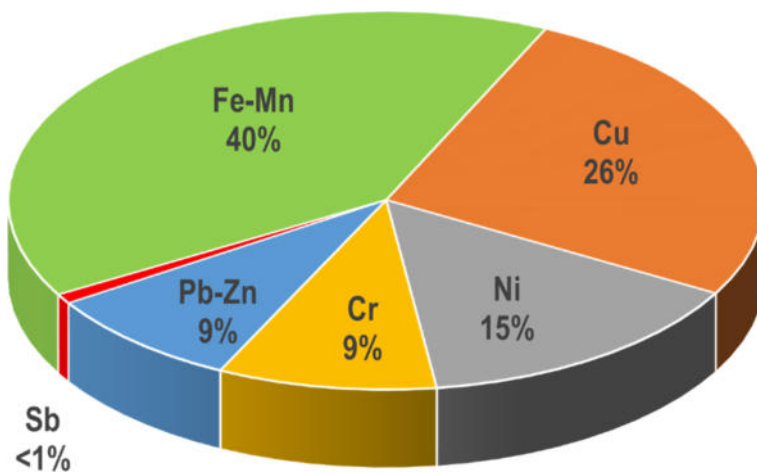


Figure 16. Areal distributions of Slag Landfills according to main extracted metal

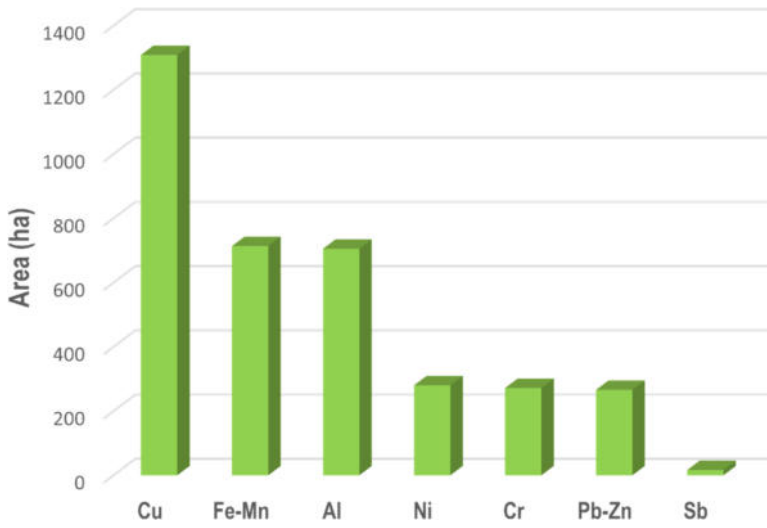


Figure 17. Areas of Mining Waste Landfills according to main extracted metal

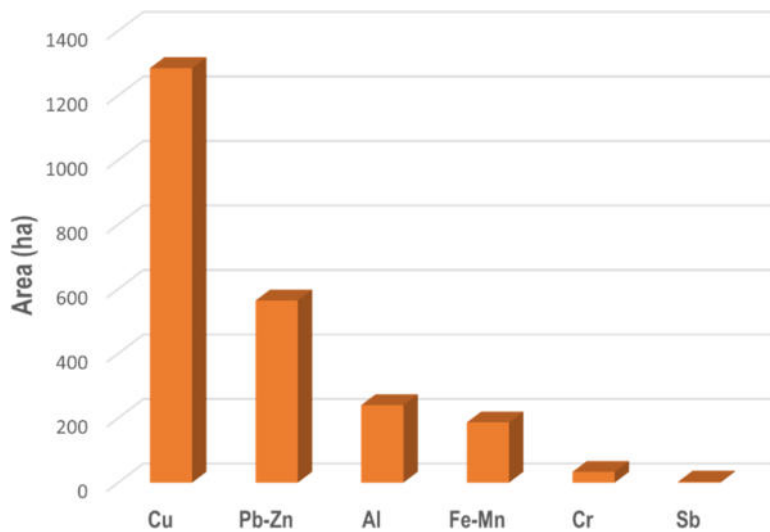


Figure 18. Areas of Processing Waste Landfills according to main extracted metal

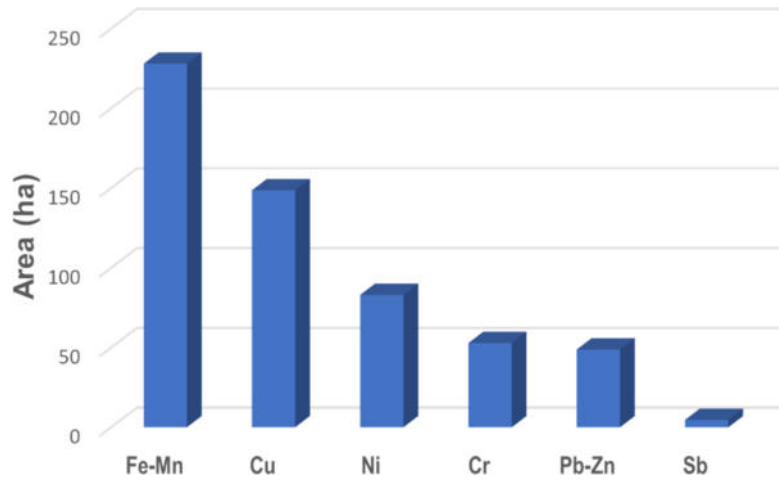
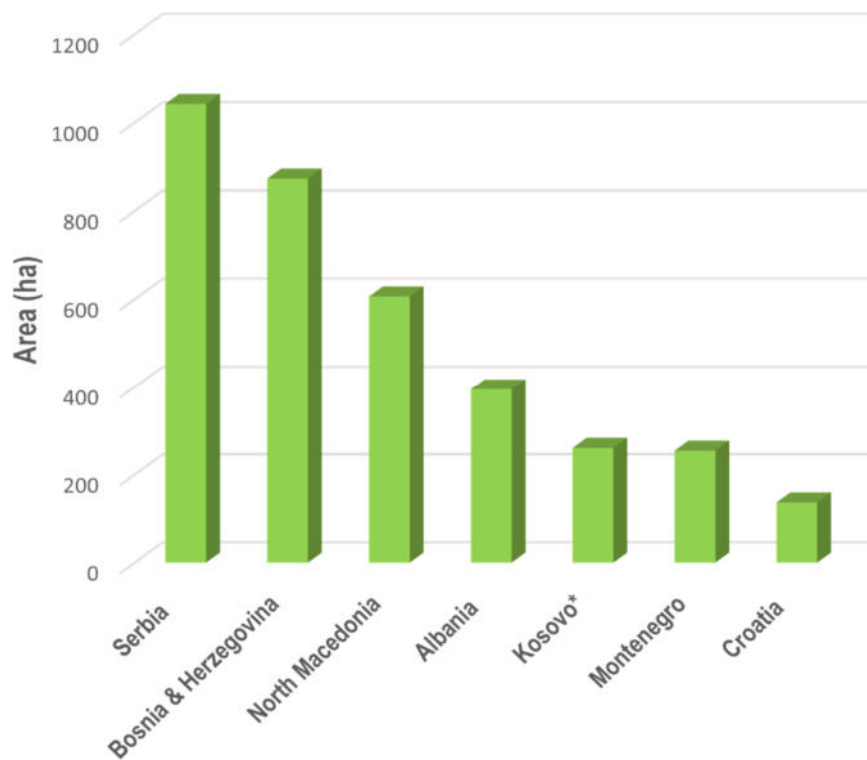
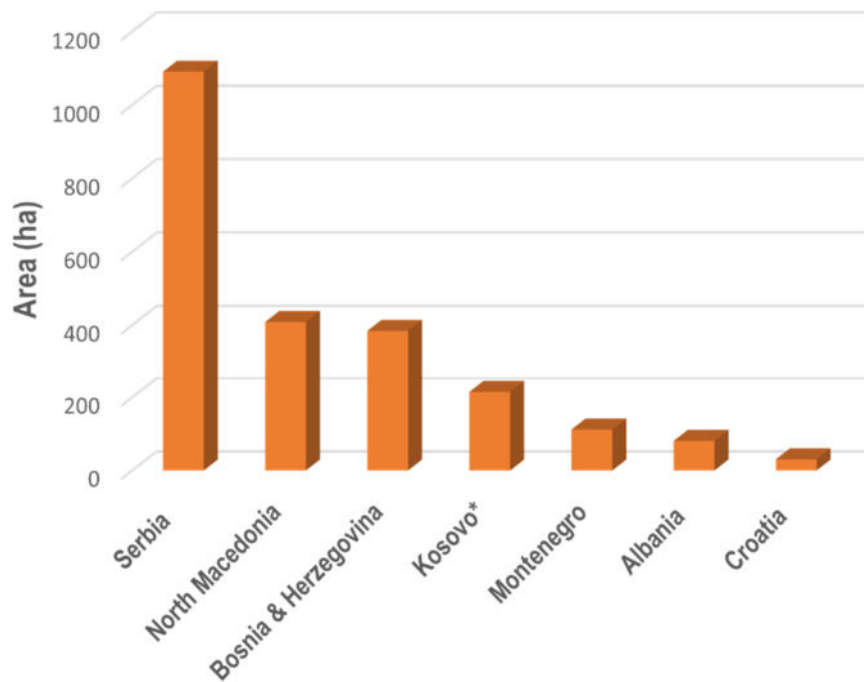


Figure 19. Areas of Slag Landfills according to main extracted metal



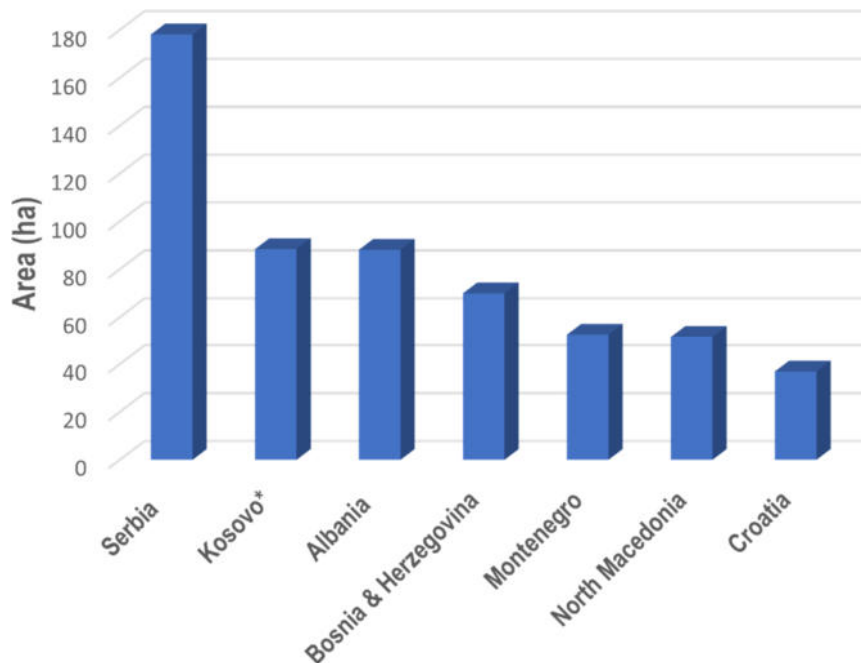
*This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo Declaration of Independence

Figure 20. Areas of Mining Waste Landfills according to country



*This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo Declaration of Independence

Figure 21. Areas of Processing Waste Landfills according to country



*This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo Declaration of Independence

Figure 22. Areas of Slag Landfills according to country

4. CONVERSION OF THE SRM ATTRIBUTE TABLE INTO THE SRM MINERAL REGISTER

The leading partner for the RESEERVE project, the Geological Survey of Slovenia (GeoZS), has identified relevant data providers and examined data quantity, quality, and format. GeoZS synthesised secondary raw material data into the common West Balkan Mineral Register and tested the harvesting of data in the INSPIRE-compliant European data model.

We mostly focused on mapping the national secondary mineral data to the already existing European data model and developing national relational databases, which fit into a common European database structure. Data harmonisation was already performed through national training workshops to assist the task partners in taking the first step towards INSPIRE directive implementation.

To achieve the final harmonisation of data the following methodology has been used:

Engineering of end users' requirements

The first step was the analysis of end user needs. The end users are different, and they have different requirements. We can divide the users' target groups into:

- users of databases and data providers (geological surveys, faculties, ministries...),
- other web application users (e.g. mining inspectors, students, general public, mining experts, academic circles, equipment manufacturers...),
- potential users of data (stakeholders, environmental agencies, statistical offices, other ministries, investors, mining companies...).

Qualitative and quantitative research of data

To achieve this purpose, a summarised Excel table for the collection of national data on secondary mineral raw materials, relevant for possible investors, was designed. The table with common attributes, using a top-down approach (from general to detailed information) has been completed by all project partners. The table includes the attributes, such as basic geographical and ownership information about each site, geometry, volume, technological data such as status, mining methods and reserves, geological data such as stratigraphy and lithology, mineral composition and rock types, stability, chemical composition, environmental impacts etc.

The recommendation, according to EU mineral resources demands and strategic tendencies, is to focus on metals and industrial minerals (special focus on CRMs), addressed to active mines/open pits, abandoned and closed mines with reserve/resources and other potential sites, and mine/metallurgical waste sites. At the end relevant secondary raw materials of the ESEE region were identified, as well as key players from expert institutions. The quality, quantity, and format of gathered data were also examined to obtain spatial data on mineral deposits and descriptive data as well.

Overview of the existing EU data model and harmonising the basic Excel table fields with INSPIRE database fields

The national data of individual countries have been harmonised with the INSPIRE data model and online services for data on mineral raw materials have been established. To achieve this end, we

examined the INSPIRE directive in detail, identified the fields that coincide with the directive, and adapted them according to the requirements. In the first phase, we focused only on mandatory fields from the INSPIRE directive and produced an extended series of Excel tables in accordance with the INSPIRE data model. In the second phase, we expanded the number of entered deposits to the minimum of 50 and started by entering extended information by also filling voidable fields.

Mapping the basic Excel table to INSPIRE customised Excel tables/harmonisation of existing data to INSPIRE-compliant data

At this stage, it was necessary to consider the specific rules required by the common data model. The data must be entered in an exact sequence; for this purpose instructions for inserting data were also produced. It is necessary to follow the provided INSPIRE code lists for interoperability with the existing EGDI platform, use the specific record identifiers, and correctly track the relationships between the data.

This stage of work has involved a series of national workshops/training courses with technical support to help the partners on the harmonisation of existing datasets into INSPIRE-compliant data, and on working with relational databases.

Mapping INSPIRE customised Excel tables to the Access relational database

This phase was relatively simple since the pre-existing Excel tables have been organised in the same way as the relational database and the data provider just copies the tables into it one by one. The Access database is already a relational database and all the errors made in the Excel table appear, so it also provides good control of the entry itself. National workshops have also been carried out for this purpose.

At this point a synthesis and creation of a common secondary raw materials dataset have already been established.

Mapping Access database into PostgreSQL

The following step was the migration of national Access databases to open-source Solutions (PostgreSQL database, used by the project). This step was performed by GeoZS.

5. INTEGRATING WEST BALKAN DATA INTO THE PAN-EUROPEAN MINERALS INTELLIGENCE NETWORK

The main project goal is the creation of the West Balkan Mineral Register, provided by national data providers, which will represent a starting point to integrate the ESEE region into existing EU data platforms. GeoZS synthesised secondary raw material data into the common West Balkan Mineral Register and tested the harvesting of data in the INSPIRE-compliant European data model.

The scenarios drawn up in the project are available through the European Geological Data Infrastructure (EGDI), which offers easy access to existing mineral data. EGDI provides access to Pan-European and national geological datasets and services from the Geological Survey Organisations of Europe. Through EGDI data, several European data harmonisation projects are accessible. EGDI was launched in June 2016 in Version 1 and has since then been extended to include more datasets, including mineral resources.

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The RESEERVE project brings national mineral-related geodata of the region into one virtual place through a web portal, so the users can more easily get the information they need directly onto their computer and free of charge. The elementary aim of the RESEERVE project is to obtain quality data and integrate it into already-existing European platforms and present their data on the web portal. This will be their starting point to follow the INSPIRE directive and obtain a strong decision-making tool for the management of mineral resources and environmental protection.

Harvesting national databases to the common EU database

To create a system with updated data, the project adopted a distributed architecture based on a central harvesting database synchronised with a central database. Data harvesting is the process to automatically extract large amounts of data from web services. GeoZS implemented a harvesting system to collect and validate INSPIRE-compliant spatial European data on mineral resources. At a country level the national provider distributes its data as a Web Feature Service (WFS). The GeoZS harvesting system retrieves this data, performs data transformation and quality control, and finally stores validated data in the central database (Fig. 24).

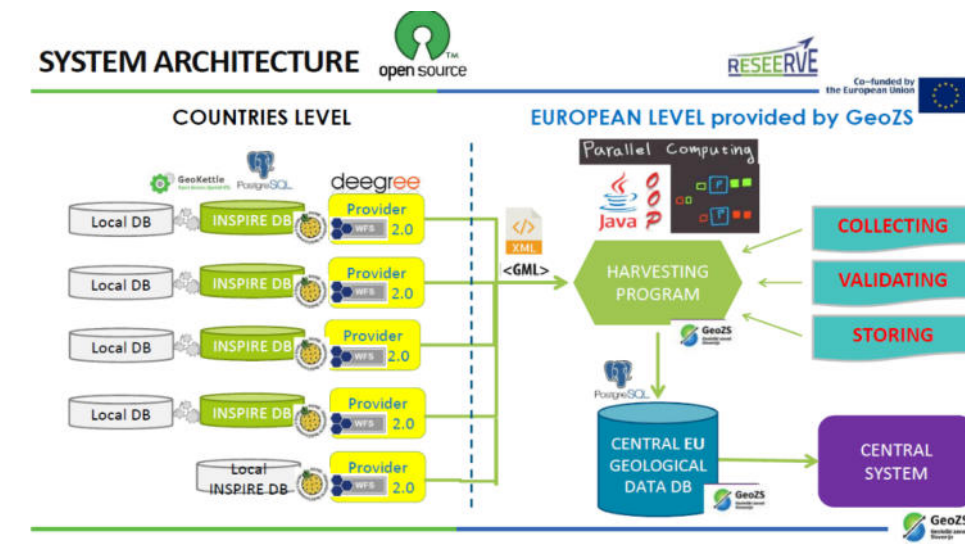


Figure 23. Architecture of harvesting system

Presentation of data on the EGD web portal

In addition to the map service displaying the mineral deposits and mines in West Balkan countries on the EGD portal, the portal also provides occurrence-specific documents related to mineral material, enabling users to make their own analyses from a huge amount of data. It represents a new knowledge base of the primary and secondary resources of the region that is interoperable with national databases. Based on this, industry can be encouraged to invest in the West Balkan minerals sector.

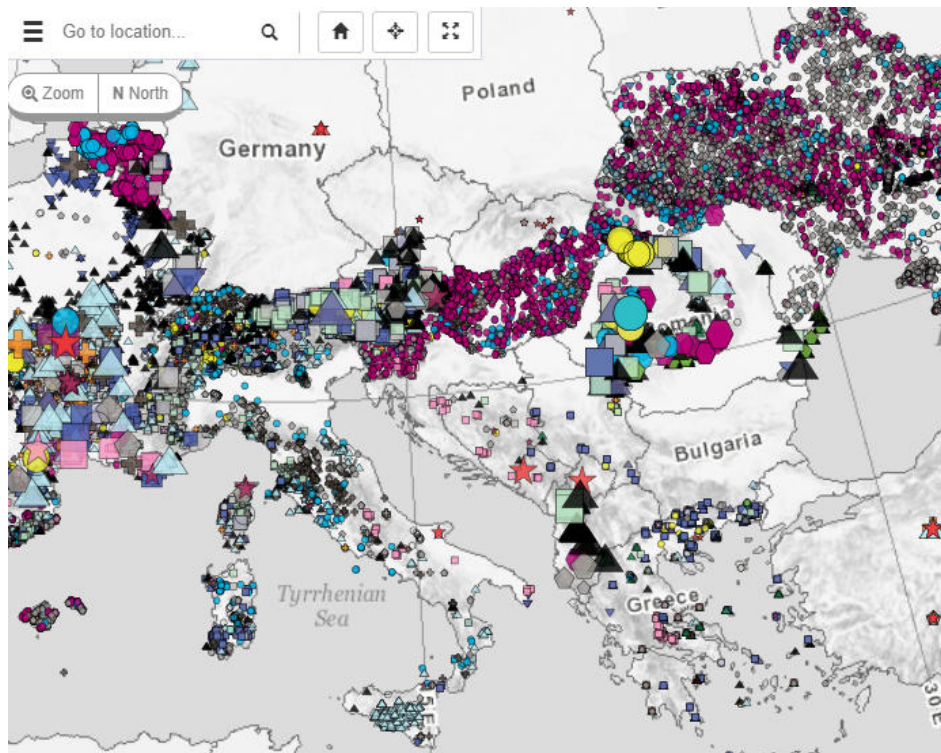


Figure 24. EGDI map viewer

The main result is the creation of the West Balkan Mineral Register for primary and secondary mineral resources. All the data are already part of the EGDI that is accessible through a web portal (<http://www.europe-geology.eu/map-viewer/>), This provides data, tools, services, and expertise to enhance the sustainable development of Europe in support of public policy making, industry, society, communication, and education purposes at European and national level.

6. CONCLUSION

For the purpose of creating the register of SRM data, a process of data collection was carried out at the beginning. In this process, five groups of data were defined in order to identify the data concerning the location of the deposits, the origin of the deposits, technological information about the deposit, and the geological and environmental characteristics. SRM data for the creation of the mineral register were collected, together with the task partners from Croatia, Bosnia and Herzegovina, Serbia, Montenegro, North Macedonia, and Albania.

In the first phase, data were collected from 123 sites. In the second phase, a field survey was conducted, and samples were collected from the 25 most promising sites in Bosnia and Herzegovina, Montenegro, North Macedonia, and Serbia. At the same time 52 SRM samples were collected. The data collection of the second phase was carried out using remote sensing methods in combination with checking already-existing databases such as copernicus.eu, usgs.gov, euromines.org and others. We checked the datasets regularly and corrected errors with each task partner. Thus, data from 1,650 sites were collected in the final phase. The collected data are presented in the Google Earth SRM application and on the web link of the RESEERVE project official website: (<https://reserve.front-lab.net/results/west-balkan-mineral-register-of-secondary-raw-materials>).

D5.3 Report on creating a West Balkan Mineral Register on SRM data

The final secondary raw material data were included in the common West Balkan Mineral Register and the harvesting of the data into the INSPIRE-compliant European data model was tested. The focus was on mapping the national secondary raw material data to the already-existing European data model and developing national relational databases that fit into the common European database structure.

The RESEERVE project brings the national mineral geodata of the ESEE region to a virtual place through a web portal, so that users can get the information they need more easily, directly to their computer, and free of charge. The created database represents a starting point to follow the INSPIRE directive and obtain a strong decision-making tool for mineral resource management and environmental protection.