



**IPA Projekat „ERA-MIN\_RO-SRB”**  
**Procena ekoloških rizika od rudarskih aktivnosti**  
**u prekograničnom području Srbija–Rumunija**  
**„ERA-MIN\_RO-SRB”**  
*Godinu dana monitoringa – rezultati, iskustva i naredni koraci*

**IPA Project “ERA-MIN\_RO-SRB”**  
**Environmental Risk Assessment from Mining Activities**  
**in the Romania–Serbia Cross-Border Region**  
**„ERA-MIN\_RO-SRB”**  
*One Year of Environmental Monitoring – Results, Experience and Next Steps*

## **ERA-MIN\_RO-SRB U BEOGRADU**

### **Peta radionica projekta – od jednogodišnjeg monitoringa do zajedničkih zaključaka**

Peta radionica projekta ERA-MIN\_RO-SRB održana je 31. avgusta 2026. godine u Beogradu, u organizaciji Instituta za rudarstvo i metalurgiju Bor. Radionica je okupila članove projektnih timova Instituta za rudarstvo i metalurgiju Bor i Univerziteta Politehnika u Temišvaru, kao i profesore Rudarsko-geološkog fakulteta Univerziteta u Beogradu.

Radionica je održana nakon završenog jednogodišnjeg ciklusa monitoringa i laboratorijskih analiza, što je omogućilo da se rezultati sa obe strane granice sagledaju zajedno, razmene iskustva i definišu pitanja važna za završnu fazu projekta.

Učesnike su pozdravili dr Daniel Kržanović, u ime Instituta za rudarstvo i metalurgiju Bor, i dr Nicoleta Nemes Sorina, u ime Univerziteta Politehnika u Temišvaru.



## **ERA-MIN\_RO-SRB IN BELGRADE**

### **Fifth Project Workshop – From One Year of Monitoring to Joint Conclusions**

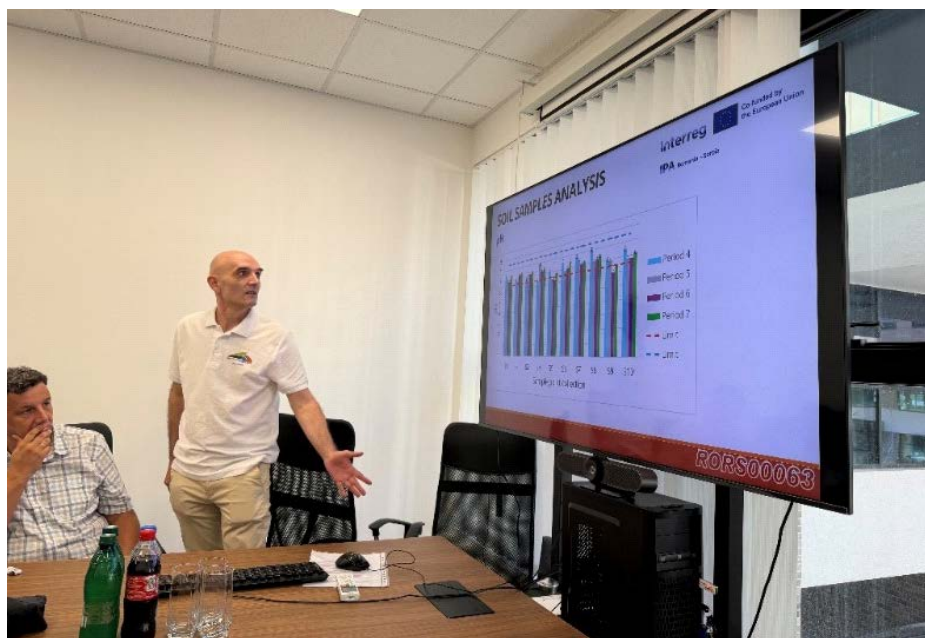
The fifth workshop of the ERA-MIN\_RO-SRB project was held in Belgrade on 31 August 2026, organised by the Mining and Metallurgy Institute Bor. The workshop brought together members of the project teams from the Mining and Metallurgy Institute Bor and Politehnica University Timisoara, as well as professors from the Faculty of Mining and Geology, University of Belgrade.

The workshop was held following the completion of a one-year cycle of environmental monitoring and laboratory analyses, providing an opportunity to

The participants were welcomed by Dr Daniel Kržanović, on behalf of the Mining and Metallurgy Institute Bor, and Dr Nicoleta Nemeş Sorina, on behalf of Politehnica University Timișoara.

## Rezultati sa obe strane granice

Dr Narcis Duteanu predstavio je rezultate monitoringa na rumunskoj strani kroz studiju slučaja Moldova Nouă, dok je Sanela Vasiljević predstavila rezultate jednogodišnjeg monitoringa i laboratorijskih analiza sprovedenih na području Srbije. Četiri sezonska ciklusa monitoringa omogućila su sagledavanje promena parametara životne sredine tokom različitih hidroloških i meteoroloških uslova. Poseban značaj ima mogućnost poređenja rezultata dobijenih na obe strane granice i njihovo objedinjavanje u zajedničku osnovu za procenu ekološkog rizika.



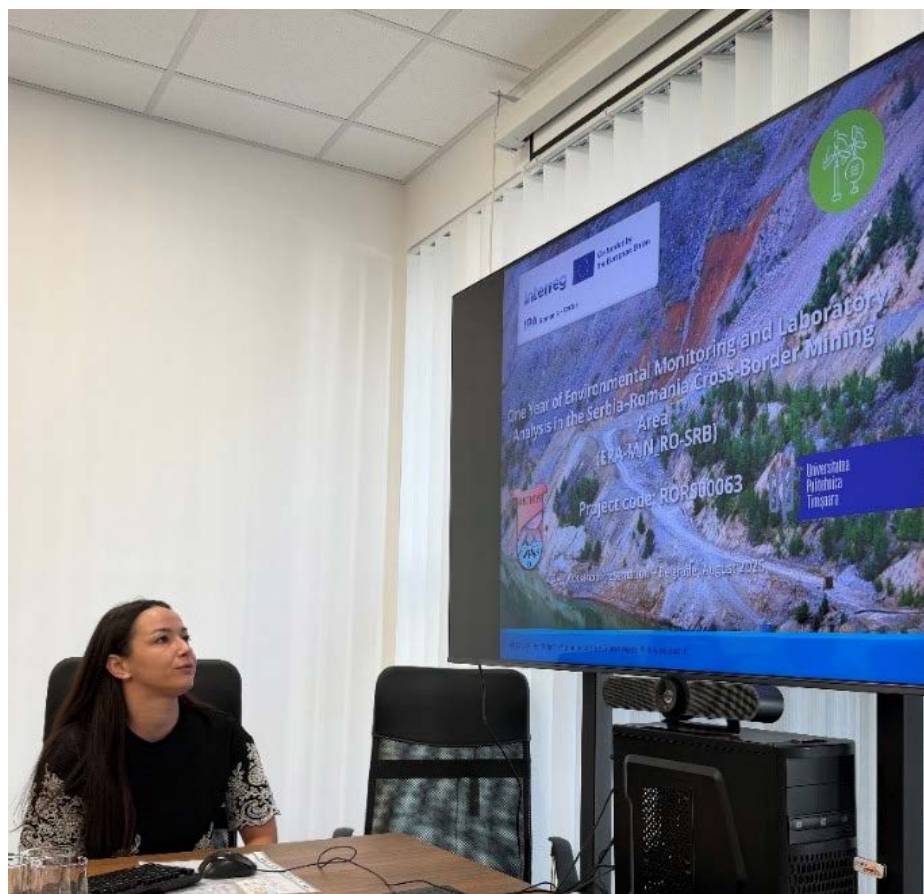
# ONE YEAR OF MONITORING

## Results from Both Sides of the Border

The central technical session of the workshop focused on the results of one year of environmental monitoring in the Serbia–Romania cross-border area.

Dr Narcis Duțeanu presented the monitoring results from the Romanian side through the Moldova Nouă case study, while Sanela Vasiljević presented the results of one year of monitoring and laboratory analyses carried out in Serbia.

Four seasonal monitoring cycles provided insight into changes in environmental parameters under different hydrological and meteorological conditions. Of particular importance is the possibility of comparing the results obtained on both sides of the border and integrating them into a common basis for environmental risk assessment.



## ŠTA POKAZUJU REZULTATI?

### Merljiva poboljšanja, ali monitoring ostaje neophodan

Dosadašnja istraživanja ukazuju na značajne promene kvaliteta rečnih voda na području Bora u odnosu na istorijsko stanje. Posebno su izražena smanjenja koncentracija gvožđa, arsena i bakra nakon primene tretmana rudničkih otpadnih voda.

Istovremeno, rezultati pokazuju da posledice dugogodišnjih rudarskih aktivnosti nisu u potpunosti eliminisane. Na pojedinim lokacijama i dalje se registruju povišene vrednosti pojedinih parametara, dok hidrološki uslovi značajno utiču na koncentracije zagađujućih materija.

Zbog toga se rezultati pojedinačnih merenja ne posmatraju izolovano, već kroz vremenske serije i povezivanje podataka o vodi, zemljištu i rudarskim aktivnostima.

## WHAT DO THE RESULTS SHOW?

### Measurable Improvements, but Continued Monitoring Remains Essential

The results obtained so far indicate significant changes in river water quality in the Bor area compared with historical conditions. Particularly notable reductions in iron, arsenic and copper concentrations have been recorded following the introduction of mine wastewater treatment.

At the same time, the results show that the impacts of long-term mining activities have not been completely eliminated. Elevated values of certain parameters are still recorded at some locations, while hydrological conditions significantly influence pollutant concentrations.

For this reason, individual measurement results are not considered in isolation, but are analysed as time series and in relation to data on water, soil and mining activities.

# RAZVOJ RUDARSTVA I NOVI ZAHTEVI ZA MONITORING

## Novi razvoj rudarskog regiona – novi zahtevi za zaštitu životne sredine

Poseban deo radionice bio je posvećen razvoju rudarskih aktivnosti na području Bora i budućim aktivnostima monitoringa. Ivan Svrkota predstavio je pregled rudarskih aktivnosti i pitanja koja će biti od posebnog značaja za praćenje njihovog uticaja na životnu sredinu.

Borsko-majdanpečki rudarski region ulazi u novu fazu razvoja eksploatacije bakra i zlata. Povećanje obima proizvodnje istovremeno povećava značaj odgovornog upravljanja rudarskim otpadom i vodnim resursima, ekološke rehabilitacije i praćenja uticaja na lokalne zajednice.

**Upravo tu ERA-MIN\_RO-SRB dobija dodatni značaj:** podaci prikupljeni tokom projekta ne predstavljaju samo sliku postojećeg stanja, već osnovu za kontinuirano praćenje promena u jednom od najintenzivnijih rudarskih područja regiona.



## MINING DEVELOPMENT AND NEW MONITORING REQUIREMENTS

### New Development of the Mining Region – New Environmental Protection Requirements

A dedicated part of the workshop focused on the development of mining activities in the Bor area and future monitoring activities. Ivan Svrkota presented an overview of mining activities and the issues that will be of particular importance for monitoring their environmental impacts.

The Bor–Majdanpek mining region is entering a new phase in the development of copper and gold mining. Increasing production levels also increase the importance of responsible management of mining waste and water resources, environmental rehabilitation, and monitoring impacts on local communities.

**This is where ERA-MIN\_RO-SRB gains additional importance:** the data collected during the project provide not only a picture of the current situation, but also a basis for the continuous monitoring of changes in one of the region's most intensive mining areas.

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## SARADNJA KOJA PRELAZI GRANICE

### Zajednički podaci – zajedničko razumevanje rizika

Radionica nije bila samo mesto predavljanja rezultata. Diskusija nakon stručnih izlaganja omogućila je partnerima da uporede iskustva stečena tokom terenskog monitoringa i laboratorijskih analiza, razmotre uočene promene i usaglaise pristup narednim aktivnostima.

Posebna vrednost projekta ogleda se u tome što stručnjaci iz Srbije i Rumunije primenjuju kompatibilne pristupe monitoringu i zajednički sagledavaju procese koji ne prestaju na državnoj granici.

Na kraju radionice potvrđeno je da razmena podataka, iskustava i stručnog znanja predstavlja osnovu za kvalitetniju procenu i dugoročno upravljanje ekološkim rizicima u prekograničnom rudarskom području.

## COOPERATION ACROSS BORDERS

### Shared Data – Shared Understanding of Risks

The workshop was not only an opportunity to present results. Discussions following the technical presentations enabled the partners to compare experience gained through field monitoring and laboratory analyses, consider the observed changes and coordinate their approach to the next project activities.

A particular value of the project lies in the fact that experts from Serbia and Romania apply compatible monitoring approaches and jointly assess processes that do not stop at national borders.

At the end of the workshop, it was confirmed that the exchange of data, experience and technical expertise provides a basis for improved assessment and long-term management of environmental risks in the cross-border mining area.



## PROJEKAT JE I POVEZIVANJE LJUDI

### Beograd – upoznavanje zajedničkog kulturnog nasleđa

Nakon stručnog programa, za članove projektnih timova iz Srbije i Rumunije organizovan je obilazak Beograda. Učesnici su posetili **Beogradsku tvrđavu** i **Kalemegdan**, kao i **Hram Svetog Save**.

Kulturni program predstavljao je priliku da se saradnja nastavi i van formalnog dela radionice, kroz neposredne razgovore članova dva projektna tima i upoznavanje sa istorijskim i kulturnim znamenitostima Beograda.

Takve aktivnosti imaju poseban značaj za prekogranične projekte, jer dugoročna saradnja ne počiva samo na zajedničkim zadacima i rezultatima, već i na međusobnom upoznavanju, poverenju i povezivanju ljudi i institucija.



## THE PROJECT IS ALSO ABOUT CONNECTING PEOPLE

### Belgrade – Discovering Shared Cultural Heritage

Following the technical programme, a tour of Belgrade was organised for members of the Serbian and Romanian project teams. The participants visited the Belgrade Fortress and Kalemegdan, as well as the Church of Saint Sava.



The cultural programme provided an opportunity to continue cooperation beyond the formal workshop sessions through direct interaction between members of the two project teams and by discovering Belgrade's historical and cultural landmarks.

Such activities are particularly valuable in cross-border projects, as long-term cooperation is built not only on shared tasks and results, but also on mutual understanding, trust and stronger connections between people and institutions.

## OD REZULTATA KA ZAVRŠNICI PROJEKTA

### Od monitoringa ka zajedničkoj proceni ekološkog rizika

Nakon godinu dana sistematskog monitoringa i laboratorijskih analiza, ERA-MIN\_RO-SRB ulazi u završnu fazu realizacije. Prikupljeni podaci, iskustva terenskih i laboratorijskih timova i zajednički rad partnera iz Srbije i Rumunije predstavljaju osnovu za završno sagledavanje ekoloških rizika povezanih sa rudarskim aktivnostima u prekograničnom području.

Pred projektnim timovima je objedinjavanje rezultata, završna interpretacija podataka i definisanje zaključaka koji treba da doprinesu kvalitetnijem monitoringu, pravovremenom prepoznavanju promena u životnoj sredini i odgovornijem upravljanju rudarskim područjima.

**ERA-MIN\_RO-SRB pokazuje da prekogranična saradnja može da pretvori pojedinačna merenja u zajedničko znanje, a zajedničko znanje u pouzdanu osnovu za buduće upravljanje ekološkim rizicima.**

## FROM RESULTS TO THE FINAL PHASE OF THE PROJECT

### From Monitoring to a Joint Environmental Risk Assessment

After one year of systematic monitoring and laboratory analyses, ERA-MIN\_RO-SRB is entering its final implementation phase. The collected data, the experience of the field and laboratory teams, and the joint work of partners from Serbia and Romania provide the basis for the final assessment of environmental risks associated with mining activities in the cross-border area.

The project teams will now focus on integrating the results, completing the final interpretation of the data and defining conclusions that will contribute to improved monitoring, timely identification of environmental changes and more responsible management of mining areas.

**ERA-MIN\_RO-SRB demonstrates how cross-border cooperation can transform individual measurements into shared knowledge, and shared knowledge into a reliable basis for the future management of environmental risks.**

## **ZNAČAJ PROJEKTA I PODRŠKA EVROPSKE UNIJE**

ERA-MIN\_RO-SRB pokazuje koliko je prekogranična saradnja važna za razumevanje i upravljanje ekološkim rizicima u rudarskim područjima. Godinu dana zajedničkog monitoringa omogućilo je partnerima iz Srbije i Rumunije da prikupe uporedive podatke, razmene stručna iskustva i formiraju pouzdaniju osnovu za dugoročno praćenje promena u životnoj sredini.

Realizacija ovih aktivnosti omogućena je podrškom Evropske unije kroz Interreg IPA Program prekogranične saradnje Rumunija–Srbija. Zahvaljujući toj podršci, unapređeni su kapaciteti partnerskih institucija, ojačana je saradnja stručnjaka sa obe strane granice i stvoreni su uslovi za primenu zajedničkih pristupa u proceni ekoloških rizika.

Posebna vrednost projekta je u tome što rezultati monitoringa ne ostaju samo pojedinačni podaci, već postaju deo zajedničke baze znanja koja može doprineti odgovornijem upravljanju životnom sredinom i održivijem razvoju rudarskih regiona.

## **PROJECT SIGNIFICANCE AND EUROPEAN UNION SUPPORT**

ERA-MIN\_RO-SRB demonstrates the importance of cross-border cooperation in understanding and managing environmental risks in mining areas. One year of joint monitoring has enabled partners from Serbia and Romania to collect comparable data, exchange professional experience, and establish a more reliable basis for the long-term monitoring of environmental changes.

These activities have been made possible with the support of the European Union through the Interreg IPA Romania–Serbia Cross-Border Cooperation Programme. EU support has helped strengthen the capacities of the partner institutions, enhance cooperation between experts on both sides of the border, and create the conditions for applying common approaches to environmental risk assessment.

An important value of the project is that monitoring results are transformed from individual measurements into a shared knowledge base that can support more responsible environmental management and the sustainable development of mining regions.

**Interreg**



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