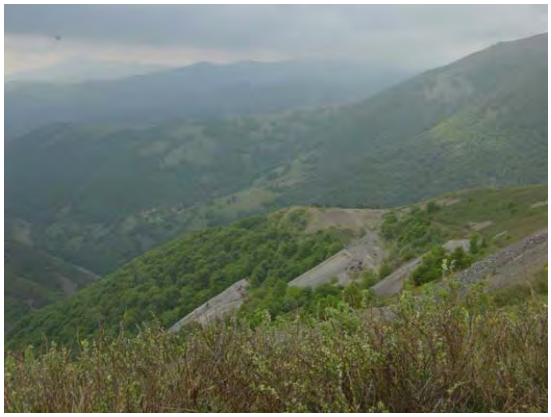
7. Survey Photographs

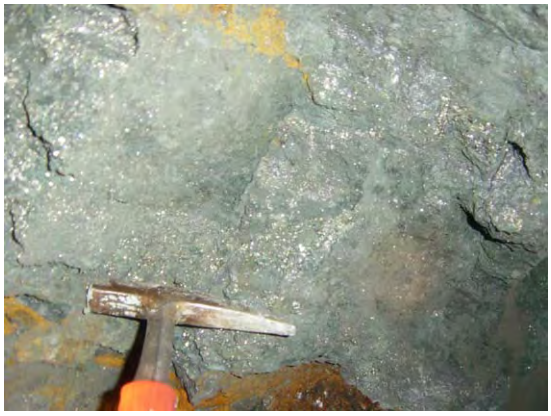
7-1 Survey photographs of exploration (1) – the Grot Mine (case study)

An entrance of the Grot Mine (1,300m level)



Entrances of drifts in the Blagodat Deposits

Underground at the Đavolja Vodenica Deposit
(1,350m level)



Occurrence of lead and zinc skarn ore
(15% Pb+Zn)

High-grade lead and zinc ore
(15% Pb and 15% Zn)

A scene of underground geological survey
(Đavolja Vodenica Deposit, 1,350m level)

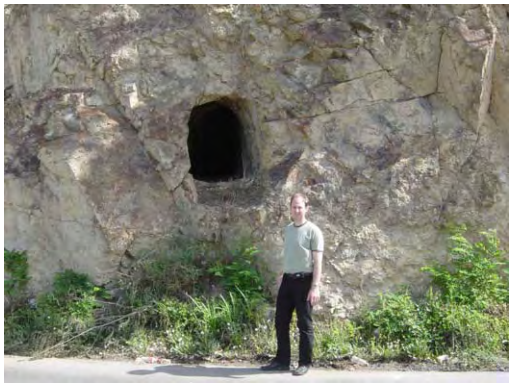
7-1 Survey photographs of exploration (2) – the Suva Ruda Mine (case study)

Interview at the Suva Ruda Mine Office

An open pit of the No.2 Ore Zone at the Kizevak deposit. Thickness of the orebody ranges from 7 to 10m.

Lead and zinc ore with 5 to 6 % Pb+Zn

Prospecting adit in intermediate zone of the Kizevak deposit



Old adit during the Roman Empire along national road. Argillaceous lead and zinc vein had been mined in andesitic tuff.

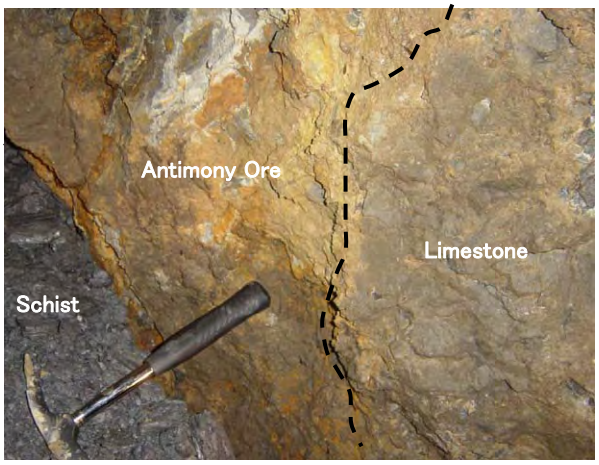
High-grade massive molybdenum ore in the Suva Ruda mine office. The area has high potential for mineral resources.

7-1 Survey photographs by exploration expert (3) – the Zajaca Mine

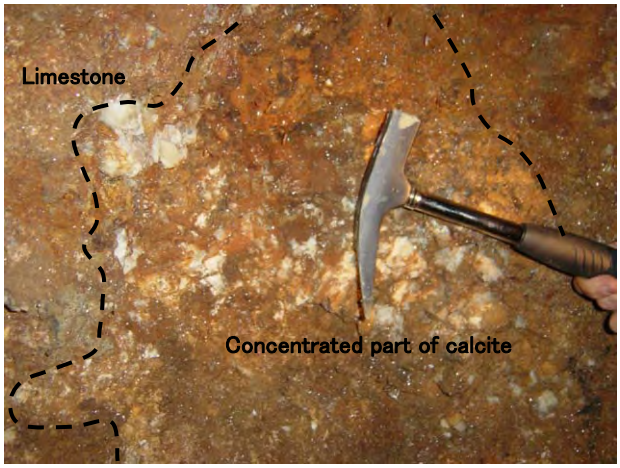
Zavorje mine office at the Zajaca mine

Interview in the Zajaca mine

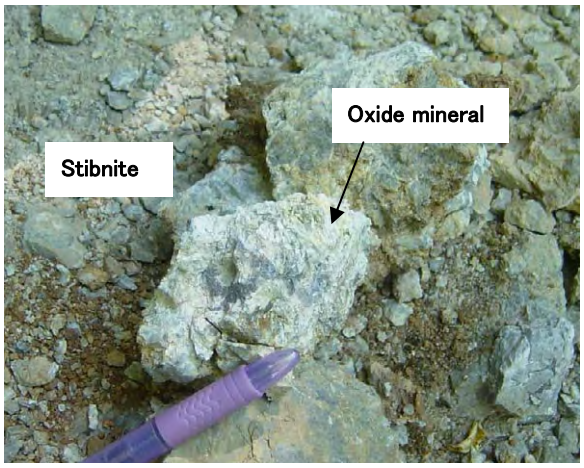
Main adit of 372m level at the Turin of the Zavorje mine



Antimony ore with 1–2 % Sb, occuring at the boundary between limestone and schist
(Pit 500 at the Zavorje mine)



Secondary calcite concentrate in the footwall of limestone containing 1–2g/t Au
(372m level at the Turin of the Zavorje mine)



Stibnite (Sb_2S_3) and antimony oxide (Sb_2O_3)
(Near the entrance of 460m level at the Stira II)

7-2 Survey photographs of mining (1) – the Grot Mine (case study)

Mine cars transporting ore to the processing plant from underground at the 1,300m level

A drill machine in operation at an underground stope. It is dark and dirty.

It is hard to walk in the dark underground because of excess mud on drift.

A miner is scaling off loose rocks on the roof in a dark underground stope

A small LHD (load, haul, and dump) transporting ore in the stope. It looks out-dated.

A mining expert explaining about Japanese mining technology. Most senior staff attended the lecture.

7-2 Survey photographs of mining (2) – the Kizevak Mine (case study)

A 6km paved access road to the pit from the national road. This road was constructed by the mine in 1984.

This orebody was mined without safety benches at the open pit. It seems over-mined

A maintenance shop for mining machines near the pit.

Several mining machines used in the pit. This photo shows a comparatively new drilling machine with a compresser.

A loading machine outside the maintenance shop.

A mine office and locker-rooms near the maintenance shop.

7-2 Survey photographs of mining (3) – the Bor Underground Mine

Cage to enter the underground. Its size is 4m × 4m with bouble-deck. The cage is linked with 500m deep from the surface.

A transporting machine, LHD (ST-6) made in USA. This machine is parked in the underground pit.

There a telephone nearby the working stope. Workers can communicate with the surce.

A working drilling machine, hydraulic Jumbo made in Norway.

Tailings materials from the processing plant areused to fill the mined spade for cut & fill method stopes. Water in tailings is discharged by this chemney.

An underground dump truck to transport mines ore to the ore-pass.

7-2 Survey photographs of mining (4) – the Kostolac Coal Mine

A main machine to strip waste in the Drmno Mine, Kostolac Mine is a dragline.

Continious cutters are working to mine coal seams in the pit. Each cutter is connected with beltconveyors.

Mined coal is transported by beltconveyors to the generation plant.

A generation plant in the Kostolac Mine.

Around the Drmno Mine, there are about 200 wells which are continously dewatering.

A Roman ruin, Viminacijum nearby the Drmno Mine. It is impossible to mine 40 million t coal in order to avoid this ruin.

7-2 Survey photographs of mining (5) – the Kovilovaca Limestone Quarry

View of the Kovilovaca Quarry from above. Bench height is 20m.

A pit bottom is used to store the products.

2 large pit-crushers made in USA. They were bought in last year.

A large braker made in Korea can move by itself to break large size limestones.

A dump truck transports blasted limestone to the the crushing plant.

The crushing plant can produce various sizedproducts. there are sedimentation ponds to clarify dirty water.

7-3 Survey photographs of mineral processing (1) – case study

Mineral processing plant at Lece mine

Tailing dam No. 3 at Lece mine

Tailing dam No.4 at Lece mine

Flotation stage at Suba Ruda Mine Processing Plant

View of the old tailing dam on the Cu side of Suva Ruda Mine

A core drilling and sampling points at an old tailing dam at RTB Bor

7-3 Survey photographs of mineral processing (2)

Old Cu Tailing Dam at Suva Ruda Mine

Suva Ruda Mine Processing plant from the old dam Pb-Zn site

Grinding stage at Rudnik Mine Processing Plant

Flotation Stage at Rudnik Mine Processing Plant (2)

Milling and flotation stages at Grot mine Processing Plant

View of Tailing dam at Grot mine

7-4 Survey photographs of smelting (1) – the Zorka Zinc Smelter

Exterior of the smelting plant

Roaster　ESP

Extraction stage

Zinc electrolysis

Zinc casting

7-4 Survey photographs of smelting (1) – the Bor Smelter

Smelter over view

Waste water treatment plant

Concentrate storage house

Anode casting area

Mother mold

Tank house

7-5 Survey photographs of environment (1) – the RTB Bor

Open Pit and Waste Dump

Erosion of Waste Dump

Acid Water from Waste Dump

Erosion of Tailings Dam

Discharged Water from Smelting Plant, Bor Mine

Contaminated Robule Lake by Bor Smelter