

MALI I LOPES – 10 KORRIKU – THEKEN – TERNOVE CHROMITE DEPOSITS AND THEIR POTENTIAL

V. GJONI¹

ABSTRACT

Mali Lopes-10 Korriku-Theken-Ternove chromite deposits are located in the Bulqiza ophiolite massif. According to the recent data, it is concluded that this area is a new very prospective target.

KEY WORDS: Chromite, Bulqiza, ophiolite complex, Albania.

I. GEOLOGICAL SETTING

Mali Lopes-10 Korriku-Theken-Ternove constitutes an ore field of about 24 km². It is situated in the south-eastern part of the Bulqiza ophiolite massif (figure 1). It belongs to the southeastern and eastern part of the Bulqiza-Bater-Ternova axial sector. Different scale mappings (1:50.000, 1:25.000, 1:10.000 and 1:2.000) and several studies have been carried out in this region (Alliu, 1991; Dobi et al., 1981; Gjoni, 1995; Gjoni et al. 1994; Hallaçi et al. 1989; Premti et al. 1996, Hina, 1987) The generalized section of this ore field is shown in figure 2.

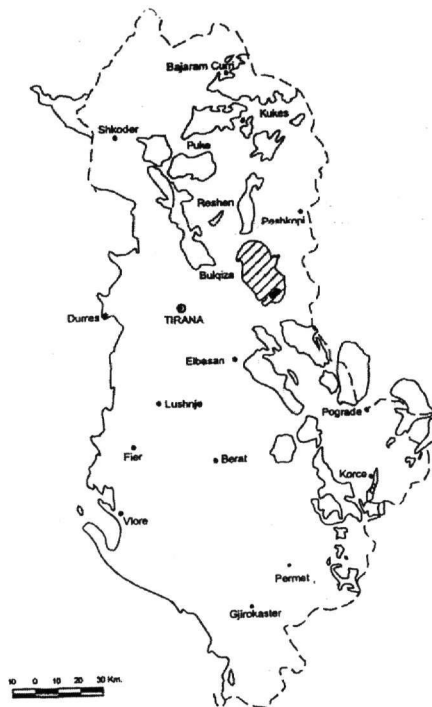


Fig.1 - Schematic map showing the location of mafic-ultramafic massifs of Albanian Ophiolites, with particular regard to the Bulqiza Massif (dashed lines) and Mali i Lopes - 10 Korriku - Ternove ore deposits (dots).

A. Mantle tectonite sequence.

The lowermost part of this sequence is characterized by harzburgites with rare dunite intercalations (5-7%). The dunites are of the lens-shaped morphology and lightly serpentinized. Harzburgites are generally fresh and characterized by cataclastic, porphyroclastic, and mosaic textures. Upward, the section consists of harzburgite-dunite intercalations. The dunites display a lens shape, and are tens to hundreds of meters in length. The number of dunite lenses and their size increase from bottom to top. The dunites occupy 7-25% of the rock volume. This lithologic unit is followed by dunite-harzburgite intercalations where the dunites are evidently increasing. Their amount is over 25% of the rock volume.

B. Cumulate sequence.

From bottom to top, the cumulate sequence of this area is composed of dunites, lherzolites, websterites, and gabbronorite. The last ones are located in its uppermost part of the section.

II. ORE GEOLOGY

The Mali i Lopes-10 Korriku-Theken-Ternova ore field consists of a folded structure with NW-SE strike (320°-330° strike azimuth, 270°-280° for Thekna deposit), SSW dipping with moderate to high angles. The folding intensity decreases towards the southeastern part of the

1. Albanian Geological Survey, Rr. Kavajes, 153, Tirana, Albania

GENERALIZED COLUMN OF MALI LOPES - TERNOVE REGION					
THICKNESS (m)	SEQUENCE	ROCK TYPE	LITOLOGICAL COLUMN	Geologic Features	ORE BODIES
~ 30	CUMULATE	Gabbro	G G G		
~ 200		Piroxenite	Px Px		
~ 50		Lherzolite Wehrlite	L-W L-W		
400 - 500	TECTONITE	Massive Dunites	D D D D D D	Dunite with intercalated chromite and Ni - Sulphide	Guri i Mekes Kodra e Menes Fushe Kisha Kopshti i Kalit Livadhi i Dashit etj
> 300		Harzburgite-Dunite (over 25% lense dunite)	H H H H H H	Harzburgite - dunite with some levels of chromite	Maja e Theknes North Thekn East Lq. Sopeve Sud dep. Ternove Sud dep. Theken Liqeni Sopeve Tri Gjeprat etj
~ 300 - 400		Harzburgite-Dunite (7-25% lense dunite)	H H H H H H H H H H	Harzburgite with dunite lenses (7-25%) and with two levels of mineralisation	"Korriku 10" Body 1 "Fushe Lope" Body 2 "Fushe Lope" Body 4 "Fushe Lope" Body 6 "Fushe Lope" Body 9 "Fushe Lope" North Theken North Ternove Body 7 "Fushe Lope"
> 1000		Harzburgite with 5-7% dunite	H H H H H H	Harzburgite with rare dunite and concentration of podiform chromite	Body n° 3 dep. "Fushe Lope"

Fig.2 - Generalized stratigraphical column of Mali i Lopes - Ternove Region. H=Harzburgite, D=Dunite, L-W=Lherzolite and Wehrlite, Px=Pyroxenite, G=Gabbro; black lines= Chromitite ore body.

ore field. Folding is observed in the cross-section with azimuth N125° (fig. 3), N70° (fig.4) and N-S (fig.5a).

The fault tectonics, evidently increasing from east to west and from northwest to southeast, consist of three main fault systems:

- 1) Parallel to the strike of the principal structural elements
- 2) Cross-cutting
- 3) Oblique

III. CHROMITE ORE BODIES

The main chromite ore bodies occurs in the tectonite and cumulate sections of the Bulqiza ophiolite massif. Based on their morphological, mineralogical and petrologic features, the following principal mineralization levels are distinguished:

1. The mineralization related to the harzburgite-dunite sequence is the most important one. It is distinguished from the high-grade ores and the large reserves. Some parts of the Lugu i Gjate, 10 Korriku, Thekna, Ternova and Fushe Lopa ore deposits correspond to this level (figure 4,5).

2. The mineralization related to the dunite-harzburgite association is characterized by limited size, low grade and reduced reserves. The Thekna Veriore, Ternova (southern part), Tri Gjeprat, Liqeni i Sopeve, Lindja e Liqenit e Sopeve and other ore bodies belong to this sequence.

3. The mineralization related to the dunite cumulate sequence is represented of Guri i Mekes, Livadhi i Dashit, Kopshti i Kalit and Kaptina ore deposits.

These data show that the chromite mineralization is located not only in the well-known Bulqiz-Bater area, but in the southeastern and eastern sectors of mantle sequence.

IV. NEW POTENTIAL TARGETS FOR THE FUTURE PROSPECTING

According to the ongoing studies, the perspective for the chromite prospecting in this ore field is open. These chromite concentrations are less important with respect to Bulqiz-Bater ore deposit, but in anyway they merit a particular attention. The ore bodies show a sub tabular and lens morphology. The ore bodies must be prospected in the longitudinal and cross direction. They indicate a southern to southeastern plunging. It is necessary to apply the rare drillings, but taking into the consideration always the fault tectonics.

JNE

SSW

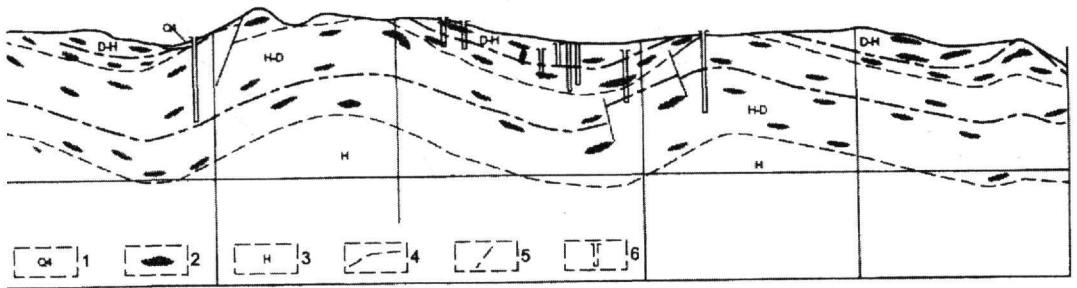


Fig-3 Geological cross-section Mali i Lopes - Vervjak area. 1 = Quaternary deposits, 2 = Dunite, 3=Harzburgite, 4 = Geological boundaries, 5 = Faults, 6 = Drillings

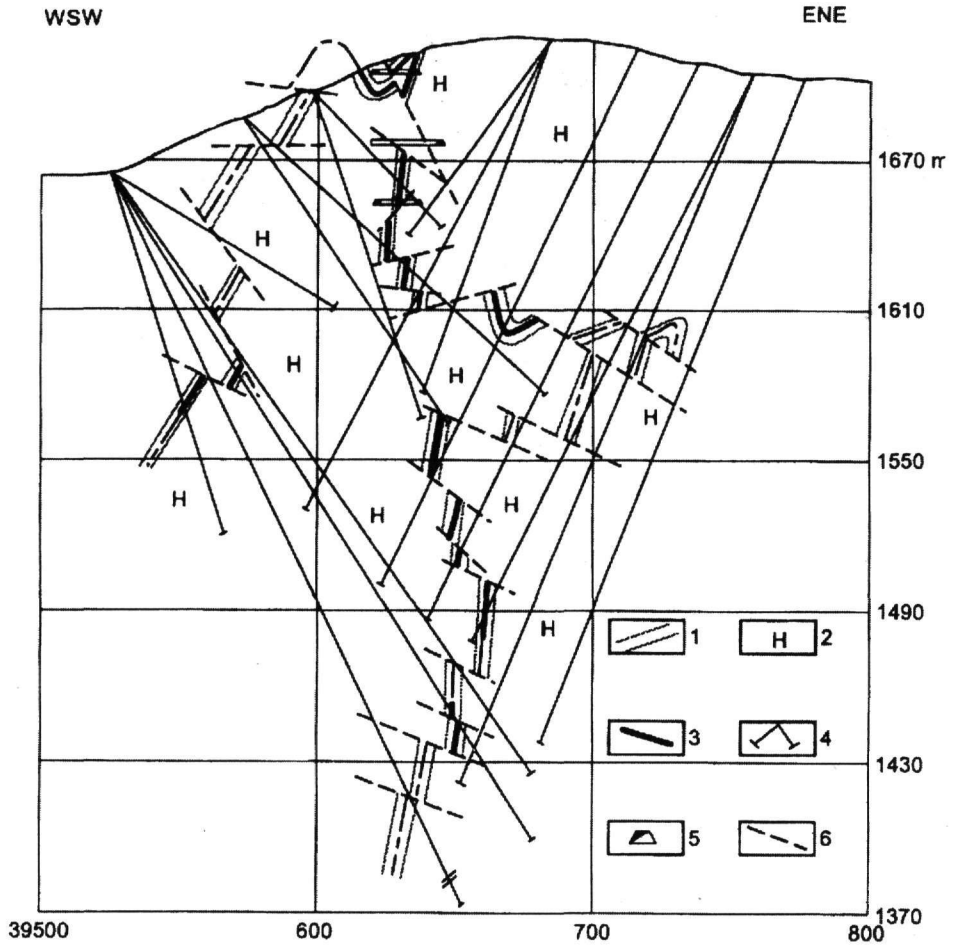


Fig.4 - Geological cross-section of the 10 Korriku deposit. 1 = Dunite, 2 = Harzburgite, 3 = Chromite body, 4 = Drillings, 6 = Faults

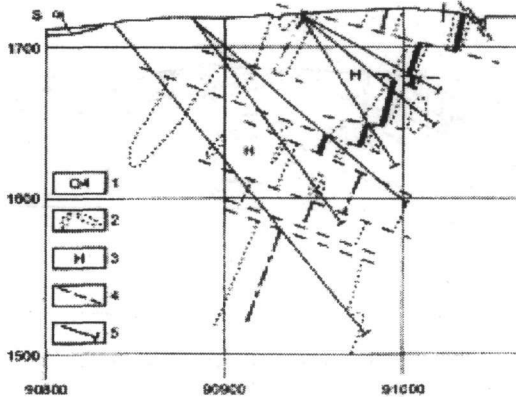


Fig 5a. 1 = Quaternary deposits, 2 = Dunite, 3 = Harzburgite, 4 = Faults, 5 = Drillings, (solid black indicate the chromite bodies)

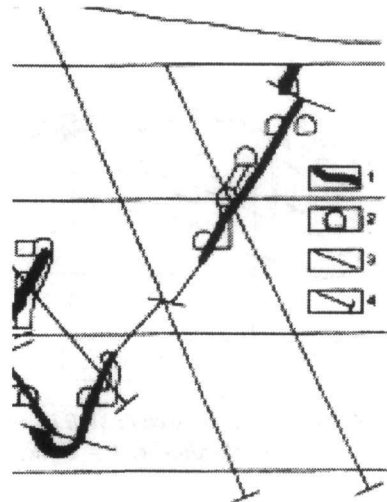


Fig 5b. 1 = Chromite ore bodies, 2 = Gallery, 3 = Faults, 4 = Drillings.

Fig 5.- Geological cross-sections of Mali i Lopes (a) and Ternove (b) deposits

CONCLUSIONS

1. Mali Lopes – 10 Korriku– Thekna – Ternova chromite ore field is part of the Bulqiza ophiolite massif.
2. Chromite ore bodies are situated in the tectonite and cumulate sections. The most important high-grade metallurgic type ore bodies with large reserves are located in the tectonite sequence, but not less interest represent the ore concentrations found within ultrabasic cumulates.
3. This area is a new prospecting target. The large chromite concentrations are located not only in Bulqize-Bater-Ternova axial sector, usually considered of the first hand importance, but also in the lateral areas developed in the southeast and east.

REFERENCES

- ALLIU I. 1991 Rock geochemistry of the Bulqiza ultrabasic massif. Ph. D. Thesis, 168 p. (in Albanian)
- ÇINA A. 1987 Mineralogy of the Bulqiza massif chromite bodies. Bul. Geol. Res., 3,58-83
- DOBI A., ALLIU I., HOTI S., GJONI V. 1981 Geologic-geophysic prospecting works for the chromite prognosis in Bulqiza massif. Internal report, AGS, 235 p.
- GJONI V. AND CENI R. 1994 Geological report and the reserve calculation of Fushe Lope ore deposit. Internal report, AGS, 148 p.
- GJONI V. 1995 Petrology and the chromite deposit setting in Bulqiza massif. Ph.D. Thesis, 231 p. (in Albanian)
- HALLAÇI H., QORLAZE S., GJONI V., DHIMA K. 1989 Geological regularities of the Premti I., Braçe A., Gjoni V. 1996 Petrological modeling of Bulqiza and Shebeniku ultrabasic massifs with metallogenic implications. Convegno italo-albanese, Tirana, 65-72