

CHAPTER II

OVERVIEW

2.1 Regional Geology Vang Tat Gold Mine

Based on previous research studies are composed of regional stratigraphy sedimentary, effusive-sedimentary and meta-effusive at different level formations and intrusives ones of ultramafic-to-acidic composition formations range from old to young :

Late Proterozoic-Early Cambrian metasedimentary formation (PR₃-E₁)

Sedimentary, effusive-sedimentary formations distribute at a wide area occupying more than a half of investigation area in the Vang Tat area, about 161 km². Involving in these formations, based on stratigraphic order.

Cenozoic effusive basaltic formations

Cenozoic effusive basaltic formations are limitedly distributed. In some locations, these formations are remained as protobody, at other places they were strongly eroded to be remained as tigerskin from on the structural basement. These formations are mostly distributed at a NE corner of the surveyed and investigated area.

Late Ordovician-Early Silurian intrusive granite porphyry formations

Intrusive granite porphyry formations aged in late Ordovician-Early Silurian are exposed mainly at the SE part of the working area. They are big batholithic bodies which are very fine in the spot images. The result of survey and petrographic analysis of these batholithic bodies show that intrusive formation here are porphyraceous granite. Porphyraceous granite biotite, medium-to-coarse-grained granite biotite.

Devonian intrusive granodiorite and leucocratic granite formations

Devonian intrusive granodiorite and leucocratic granite formations are mainly distributed in the framework of the western part of the working area with exposed area of about 43 km². This is a big batholithic body, developing on over the Sekaman area to the West part of the surveyed area. On the spot images, their surface is relatively fine indicating an eroded relief.

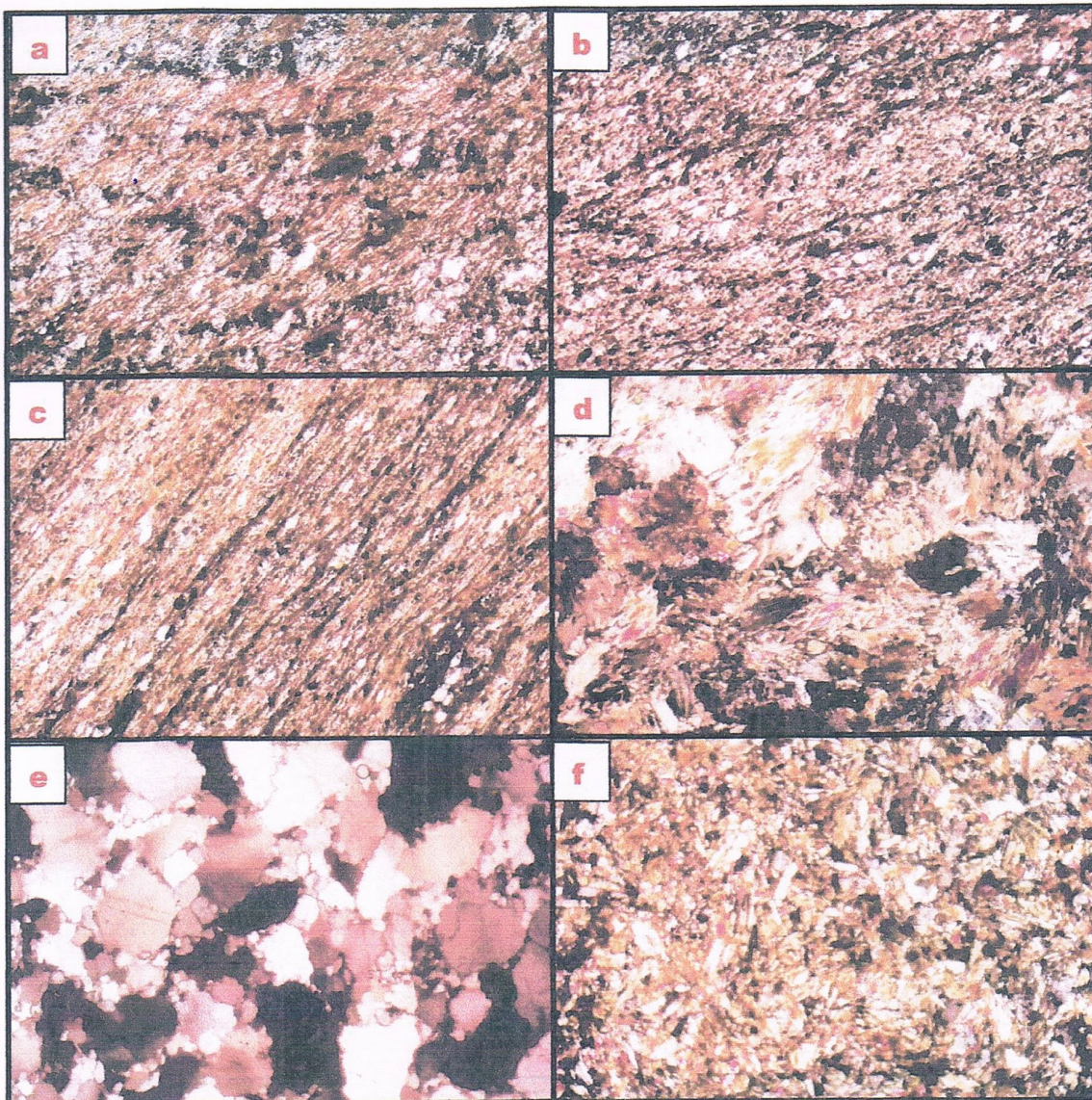


Photo 1. Show thin slice of rock; (a) Clay-coal-sericite schist, (b) Clayey quartz aleurolite; (c) Clayey quartz aleurolite bearing strongly schistosed coal matter, (d) Greenschist; (e) Quartzitic sandstone; (f) diabase

Carboniferous leucocratic intrusive granite formations

Intrusive formation attributed to the Carboniferous age on the basis of comparison with the development of intrusive formations established by JICA Consultant at the South of the exposed site of these intrusive bodies. All of them are on the same topographic belt, having the same tone of satellite images.

Middle Triassic intrusive ultramafic and mafic formations

Intrusive ultramafic and mafic formations are not much exposed in the working area following a belt of submeridional direction along a deep-seated fault of the same direction. These are dyke bodies penetrated through sedimentary terrigenous formations as well as through the older intrusive ones

2.2 Stratigraphic Exploration Area (3 km²) Vang Tat Gold Mine

Based on preliminary exploration activities carried out, lithologies encountered in the exploration area, the unit consists of schist and quartzite units, and there is a granodiorite dyke but spread only locally. Schist unit consists of; muscovite schist, quartz sericite schist, chloritic schist, and graphitic schist chlorit, and metasiltstone.



Photo 2. Outcrop view muscovite schist with sample coding ID OCI 22/1-R1



Photo 3. Outcrop view quartz sericite schist on Nong Khai Ok



Photo 4. Outcrop view chlorite schis with sample coding ID OCI-23/RC-R1



Photo 5. Outcrop view graphitic schis with sample Coding ID OCI-87/1-SP 8E



Photo 6. Outcrop view metasiltstone with sample coding ID OCI-62/3-Sb



Photo 7. Outcrop view quartzite with sample coding ID OCI-1/1-SP 8



Photo 8. Outcrop view granodiorite with sample coding ID OCI-37/RC-R2

2.3 Structure Geology Exploration Area (3 km²) on Vang Tat Gold Mine

The results of geological survey show that there are two exciting different destructive faulting systems of different directions in the area. The oldest destructive faulting system of sub-meridional direction stretches along the boundary between quartzite and quartz-sericite schist. The slide surface of this system is dipping very vertically to the East, in some cases its dipping angle reaches up to 85 – 90°. Strongly cataclastic, folded zones are met along this system which had been cut through by the faults of sub-parallel faulting system that made its to be shifted at different spaces. The folding activity in this area is of regional scope. According to the study results, the whole area appears to be a complete syncline having a folding axis coincident with the main fault of sub-meridional direction.

Based on the results of geological mapping in the exploration area (3 km²), the location of Vang Tat Gold Mine is strongly influenced by the formation of a reverse fault orientation from north to south and estimatedly to be a continuous fault. The existence of these structures can be identified from the shear zone in the north (Spot 7), waterfalls, rock cliffs and slopes of schist foliasi relatively large (> 50°).



Photo 9. Shear zone view on Spot 7 area



Photo 10. Water fall view on River 1 area



Photo 11. Foliation of schist view is very steeply ($>50^\circ$) on Spot 7

2.4 Physiography and Geomorphology

Elevation with the Vang Tat gold mine range from sea level on the North Eastern is side 1613 m above sea level. Topography is moderate to extremely rugged in the Eastern part of exploration area of Vang Tat gold mine. Areas of primary rainforest are confined to the Western, less accessible parts of the Vang Tat gold mine.

Geomorphologically, the areas under line rugged mountainous terrain, while those under line by the fault and intrusives give way to more moderate topography. As with much of LAO, the area is subject to a tropical, equatorial climate with a distinct wet and dry season. Major drainage systems within Vang Tat gold mine is the most dominant river and its headwaters rise within the mountainous East region.



Photo 12. Geomorphology view on the Vang Tat Gold Mine area

2.5 Alteration and mineralization

Mineralisation, according to previous studies are to be related to quartz-sericit-pyrite and quartz-sericit-chlorite-pyrite alteration with assumption of good correlation between pyrite content and gold grades. The styles of mineralization are recognized; Largely concordant quartz veins with sericit, chloritic, and silicified alteration with paralleling the dominant foliation of metamorphic units. Structurally, mineralization appears in mostly north-south striking steeply dipping, and also mineralization seems to parallel with the dip of foliation.



Photo 13. Quartz vein view which is parallel to the field foliasi (North South orientation).