CHAPTER IV
DELINEATING MINERAL PROSPECTS

The prospecting and anlaysis data collected from the San Say and Se Koongof 199.1km2 indicate that gold mineralization predominantly occurs in the region in different distribution corresponding to different geological structures.

In order to exactly determine next steps to be done, it is essential to delineate mineral prospects based on mode of occurrence of mineralization.

Mineral prospects and mineralization types are classified based on the following principles:

+ Origin;

+ Premises and indications of mineralization.

+ Mode and scope of mineralization occurrence.

The principles aforesaid will facilitate evaluation of the regional mineral resource potential based on the gold mineralization potential of these two Areas.

The gold mineralization exists in the region in diversified modes of distribution and occurrence, occurred in both intrusive formations and metasediment formations of different ages and occurred as placer gold and primary gold.

I. Gold prospects within the 166.6 km^{2}Area:

1. Placer gold formations:

Placer gold formations occurred in the licensed Area of 166.6 km^2 in two different geological Formations.

+ The first area (Au – I):

Intrusive rocks-hosed placer gold formation covers an area of over 1 km^{2}and extends to the north. III-grade heavy mineral halos are seen in this area and the samples taken along this valley indicate high grade as shown in the table below.

SAMPLE NO.	COORDINATE		NUMBER OF GOLD GRAINS/ 10 dm^3
	X	Y	
TS. 133	780,293.00	1,692,662.00	15
TS. 135	779,378.00	1,693,086.00	6
TS. 137	779,118.00	1,693,453.00	37
TS. 138	778,791.00	1,693,809.00	45

Gold occurs as angular grains of 0.1 – 0.4 mm in varying size as shown in Photos III – 1, 2, 3, 4 in Chapter III.

Shear zones-hosted, gold-bearing mineralization within the valley is shown in Drawing N^o. 9

Lower parts of the valley narrow, and thus facilitating a high accumulation of placer. These areas have been partly mined in the dispersed and scattered manner by local people.

Follow-up investigation in this prospect should be warranted to evaluate the placer gold potential, in combination with investigation of primary gold mineralization for the purpose of small-scale mining.

+ The second area (Au – II):

This area is located in the upstream DakChiep. The placer partly exposes at a part of the valley upstream and partly occurs underground in the valley downstream (see drawing N^{o}. 9)

The valley is composed of the Neoproterozoicmetasediments and mafic intrusive rocks. Athe placer occurrence covers an area of 1.5km^{2}.

Placer is orginated from streams carrying placer gold. Analytical results of the pan samples taken from the higher parts of and within the placer-containing valley are shown in the following table:

SAMPLE NO.	COORDINATE		NUMBER OF GOLD GRAINS/ 10 dm^{3}	NOTE
	X	Y		
TS. 100	779,501.00	1,671,249.00	4	Placer-containing area
TS. 106	778,562.00	1,669,965.00	17	Samples taken from the upstream part
TS. 043	777,397.00	1,669,112.00	1	
TS. 012	777,017.00	1,668,570.00	2	
TS. 039	779,657.00	1,667,448.00	1	

Gold occurs in the placer-containing area as light-colored, coarse and angular grains (see Images N^{o}. III – 14) and it is obvious that gold grains are not mobilized far from the original supplies.

The minerals prospecting and investigation results indicate that the rather large valley and currents in tortuous course favour accumulation of placer.

This area has the placer gold potential and a detailed ground checking at the 1:10,000 scale is therefore required in order to move toward exploration and small-scale mining stages.

+Placer formations with unknown potentials(Au – III):

Along with the abovementioned placer occurrences, the downstream portion of DakChiep with the geology favorable for accumulation forms a valley containing more isometric placer than the areas mentioned above. Although the panning results of heavy mineral samples do not find any presence of placer gold, the streams supplying materials for these traps possibly carry high-grade placer gold. The placer bodies might be overlaid by layers of fine materials and so it is essential to construct swallow exploration workings to evaluate potentials of the placer - containing areas. The coordinates are as follows:

POINT	COORDINATES		AREA (km^2)
	X	Y	
I	777,844.00	1,676,750.00	2.7
II	778,976.00	1,674,103.00	
IIIS	778,108.00	1,673,720.00	
IV	776,984.00	1,676,367.00	

In this area, besides placer originating from the abovementioned valley (Au – II), placer is also supplied by placer gold-rich currents as evidenced by the investigation results that show 35 grains/$10dm^3$ of sample No. TS. 213.

2. Primary gold mineralization areas:

a) Areas with potential categorized I:

There are two areas.

The analytical results of stream-sediment geochemical and heavy mineral samples and the investigation results of mineralization occurrences indicate that primary gold occurs primarily in the south of the 166.6 km^2area.

+ Area of Au-IV occurrence:

This area is located in the western centre of the licensed 166.6 km^2area (Drawing No. …). Gold mineralization encompasses an area of 9 km^2, developing along the NNW-SSE-trending faulting system, and occurring in the Neoproterozoic metamorphic rocks.

High-grade heavy mineral halos of gold together withspikes are present in the mineralization area, along with pyrite-rich heavy mineral halos.

Besides heavy mineral halos, there are low-grade geochemical halos of Au, I- and II-grade geochemical halos of Pd and Hg, high-grade geochemical halos of Pb and Cu and I-grade geochemical halos of Sb.

+ Area of Au – V occurrence:

This area is located in the south of the Au – III occurrence area, covering an area of 21 km^2.

This area is composed of the Neoproterozoicmetasediments to the south east and Cambrian-Ordovician rocks in the remaining parts.

These rocks are commonly controlled by the NNW-SSE faulting system.

Along this faulting system, gold occurrences are seen to the west and along the boundaries of the abovementioned stratigraphic formations (see Drawing N^o. 8).

In the area, there are occurrences of I- and III-grade heavy mineral halos of gold and geochemical halos (of Au - I, II, III; Pd – I, II, III; Ag – I, II, III; Sb – II, III; Cu – III and Hg - I, II, III).There are also many sudden changes of Au and Cu based on the ICP – MS analysis results.

The presence of mercury (Hg) vàstibium (Sb) shows that the mineralization might occur in near-surface areas but the original places (supplies) are located in depth.

The above are the areas with initially verified presence of gold mineralization. The follow-up field investigation should be warranted to generate basises for the 1:5,000 scaled investigations.

b) Areas with lower potentials:

+ Area with gold occurrence to the north east (Au – VI):

This area is located further north east of the 166.6 km^2 area, and contains placer mineralization occurrences and a number of gold occurrences in shear zones. These occurrences occur in Permian-Triassic granite formations.

Besides the Au - I placer mentioned above, geochemical halos of Au - I, Sb – I, Ag – I are also in this area.

Gold mineralization covers an area of 4.3 km2. It is essential to conduct detailed heavy minerals-related work and search mineralization-containing altered zones at more detailed scale.

+ Area with gold occurrence to the south west (Au – VII):

A detailed investigation was conducted over this area, acting as the basis to evaluate potential of gold mineralization. Dykes in this area play role in ore forming. Is it possible that these dykes also exist and develop in the aforesaid area of gold occurrence Au – VI?

This area develops primarily in metamorphosed terrigenous rocks and contains multiple low-grade gold mineralization-bearing objects.

With gossan formations, it is necessary to conduct a drilling program to delineate gold-bearing secondary zone similar to semi-weathering zone-hosed enriched dikes.

II. Prospects within the 32.5 km^2 Vang Tat Kang :

Like the 166.6km2 area, there are placer gold and primary gold formations occurred in this Area, associated with sulfide-poor quartz veins in the quartz – sericiteschists.

1. Placer formation within Vang Tat Kang:

There are two main valleys in this Area:

+ Placer gold in the Vang Tat Kang valley (Au – VIII) :

The Vang Tat Kang valley is located in the centre of the 32.5 km^2 Area, to the north of Vang Tat and covers an area of 1.6 km2 along the sub-meridian fault.

In the valley, there are high terraces and flat plains.

Pan samples taken along the valley and streams flowing into the valley contain placer gold and gold grains of 0.1 - 0.4 mm in size, as presented in Chapter III (Photos III – 15, 20).

Gold occurs in heavy mineral samples at the high frequency, as shown in the following table with samples arranged in north-south order.

SAMPLE NO.	COORDINATES		NUMBER OF GOLD GRAINS/ 10 dm^3
	X	Y	
TS. 06	758,673.00	1,667,291.00	5
TS. 08	758,948.00	1,666,520.00	2
TS. 03	758,282.00	1,666,426.00	4
TS. 02	758,568.00	1,665,847.00	7
TS. 01	758,423.00	1,665,278.00	7
TS. 66	759,767.00	1,665,346.00	3
TS. 64	759,132.00	1,665,160.00	2
TS. 60	758,683.00	1,665,077.00	7
TS. 32	757,936.00	1,664,673.00	2
TS. 30	758,380.00	1,664,587.00	9
TS. 31	758,058.00	1,664,266.00	37
TS. 34	758,368.00	1,663,904.00	7
TS. 33	757,979.00	1,663,842.00	12

The shear zones in the valley contains gold mineralization-bearing quartz veinlets (Drawing No 14). Analytical results using AAS and panning methods indicate that the supplies (original places) are also associated with mineralization zones within this valley, along with streams flowing into the valley.

It is necessary to conduct investigation, evaluation of placer resource potential at larger scale for mining purpose.

+ Placer gold-bearing area in the south of Vang Tat Kang (Au – IX):

It covers an area of 1.7 $km^2$and contains placer gold of relatively isometric morphology. This area has been mined in a dispersed and scattered manner by local people.

Contained in the pan samples taken from the valley are multiple placer gold grains in varying quantity, varying from 1 to 26 grains/sample. The analysis of gold-rich pan samples and stream-sediment geochemical samples indicate such samples contain suddenly-high grades.

Characterized by a large floor and narrowed southern part, this valley is a placer formation containing gold which is not mobilized outwardly in large volume.

Besides streams, a number of primary gold mineralization-bearing small locations are found in the valley.

An investigation, evaluation at larger scale in this valley should be warranted to serve the mining activities in the near future.

2. Primary gold prospect(Au – X):

This prospect located in Vang Tat Kang is an extension of the Au – III gold-mineralization band in Vang Tat to the north.

The occurrence scope is rather large, extending from the north to the south, and is bifurcated to the north.

Along with placer-containing valleys and primary gold-mineralization locations within the valley, there are high-grade heavy mineral halos of gold overlaying.

To the north, there are geological halos of Au, Pb, Ag, Hg, Pb, Zn, Cuwith different grades and especially some spikes in grades of Au and Ag.

An investigation at larger scale (1:5,000) should be required at this area to clarify prospect of gold mineralization.

The investigation, evaluation conducted in both areas indicates that Vang Tat Kang is an extension of Vang Tat gold ore band with respectively clear occurrences, extending along shear zones. Although analytical results do not show high grades, occurrences of placer and results of pan samples indicate that the potential and occurrence of gold mineralization in Vang Tat Kang are clearer than the north east of Noong Key Uc (the 166.6 km^2area).