TECHNICAL REPORT- GREENFIELD EXPLORATION AT KAPIRI MINING TECHNIQUE, LUALABA PROVINCE, DEMOCRATIC REPUBLIC OF THE CONGO

Prepared for

KAPIRI MINING TECHNIQUE

DEMOCRATIC REPUBLIC OF THE CONGO

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Qualified Persons:

Pascal Mambwe, Senior exploration geologist and researcher in Geology. He supervised the geological fieldwork, interpreted the collected geological data and writing this report within the economic approach. https://www.linkedin.com/in/pascal-mambwe-matanda-92412b34/?originalSubdomain=cd; https://scholar.google.com/citations? user= NQh3Ni8 AAAAJ&h =en

Signed: date 16th June 2023

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Thierry Sony, He organized and participated to the geological fieldwork, and making a relationship between the community living in the concession and local administration during the fieldwork. Additionally, He verified the final version of the report.

Signed: date 16th June 2023

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1. SUMMARY

1.1. Introduction

The Kapiri Mining Technique in the Lualaba province of the Democratic republic of Congo is located around 250Km in the north-west of Lubumbashi along the Pande valley as result of the incision of the “Plateau de Biano”. Along this valley from the Kansenya Catholic concession toward the national road 1 (NR 1), there are more villages such us the Kansenya city, Kapiri, Mutobo and Kyamulubanza located inside and outside the KMT concession (Fig. 1).

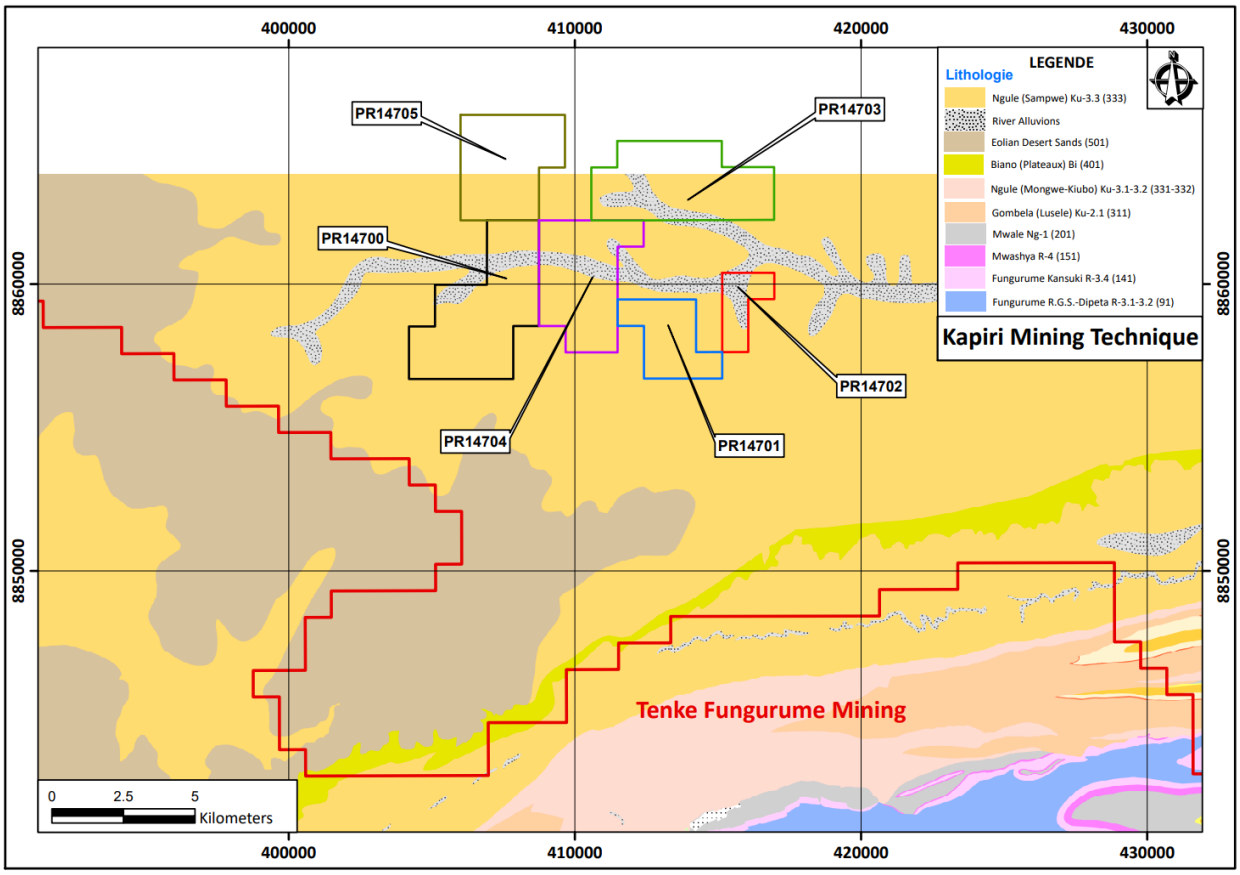

Figure 1: Regional geological map of the “Plateau de Biano” (François, 2006) and location of the Kapiri Mining Technique concessions.

The Kapiri Mining Technique compound in total six concession respectively in the south and north of the Kapiri village under these research permit for a total of 65.5806948 Km^2.

- PR14700 : 16.0338285 km^2
- PR14701 : 6.705962 Km^2
- PR14702 : 3.344182 Km^2
- PR14703 : 15.1459493 Km^2
- PR14704 :12.602301 Km^2
- and PR14705 : 11.748472 Km^2

These concession are located in the northern part of the world class Cu-Co deposits Tenke-Fungurume Mining and southern part of the world class Cu (Ag) Dikuluishi and Kapulo deposits, (Fig. 1).

1.2. Geological setting

The Neoproterozoic Katanga Supergroup host the stratiform to stratabound Cu-Co deposits and the polymetallic Cu-Zn-Pb deposit in both the Katanga Copperbelt and Zambia Copperbelt. These mineralization are controlling by the lithology, folding, faulting and brecciation (Haest and Muchez, 2011; Master, 2021; Mambwe et al., 2023).

In the Katanga Copperbelt two distinct domains are defined as follow (Fig. 2):

- the Lufilian arc as the fold and thrust belt host the major Cu-Co (U) deposit. It is extended from Kolwezi region toward the dome region around the Kinsenda-Musoshi region
- the Katanga foreland formed the triangle sharp within both the Plateau de Biano where the Kapiri Mining Technical is located and the Plateau de Kundelungu.

The geographic position of the Kapiri Mining Technique in the Katanga foreland as observed in the regional geological map within the figure 2 demonstrated that the style of copper mineralization and its timing according to the ore forming process are totally distinct in comparison with the Ruashi, Kamoto, Tenke-Fungurume Cu-Co deposit which are located along the Lufulian arc (Fig. 2). In general, in the Katanga foreland, the cobalt (Co) mineralization is missing priory to the polymetallic Cu (Ag, Pb, Zn) or Cu domintly mineralization (Haest and Muchez, 2011; Mambwe et al., 2023)

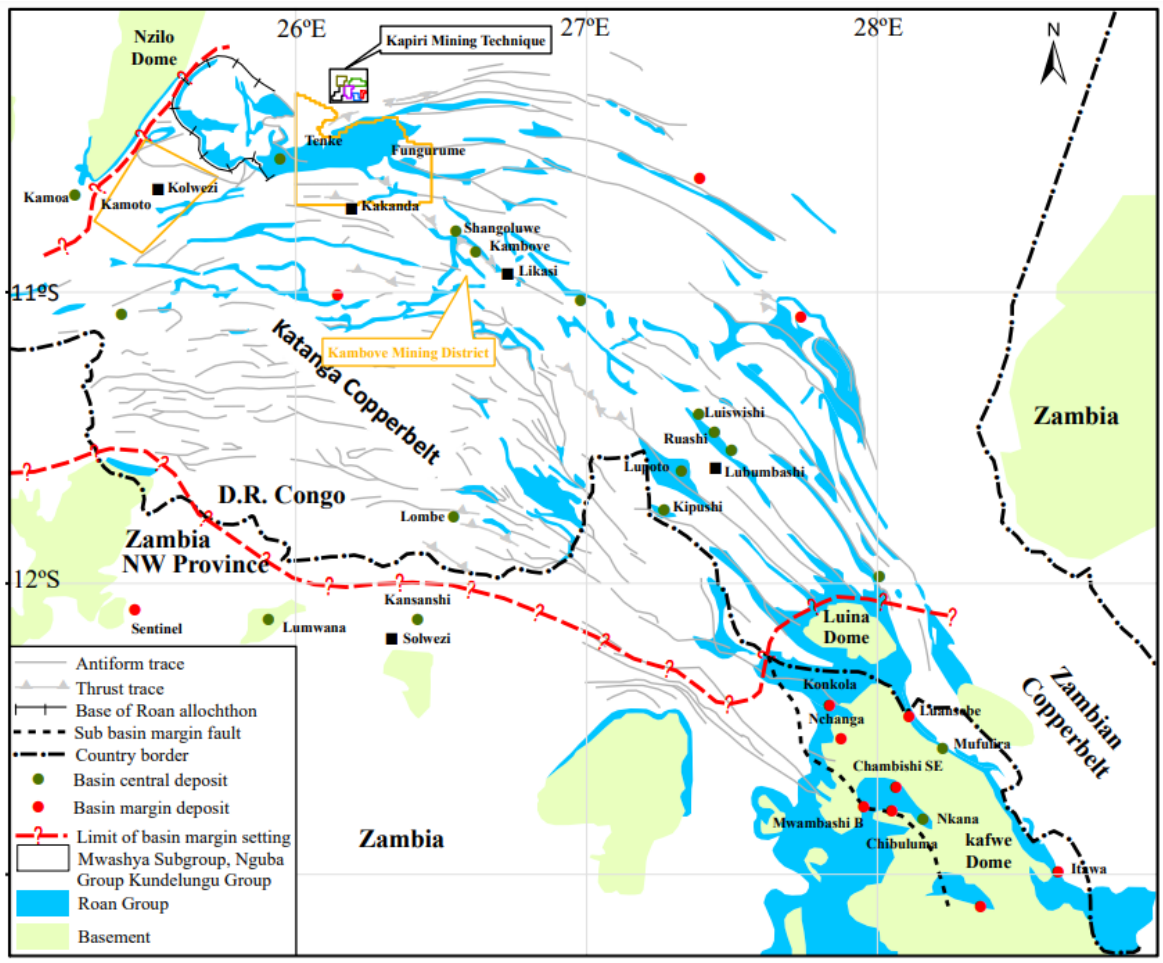

Figure 2: Geological map of the Central Africa Copperbelt show the location of major deposits and the location of the Kapiri Mining Technique in the Katanga foreland (modified from Mambwe et al., 2023).

2. GREEN FIELD EXPLORATION in 2022

Fieldwork conducted in 2022 (cf. Technical report 02/07/2022) at Kapiri Mining Technique concessions was focused on the regional geological reconnaissance, following by the soil and rocks sampling. These samples were prepared and using the X-ray fluorescence (RXF) for the chemical analysis of Copper (Cu), cobalt (Co), iron (Fe) and manganese (Mn). The results of this non-destructive chemical method are reported in report from the “Groupe des Aménageurs de la R.D Congo” laboratory and .operated in Lubumbashi (Democratic Republic of the Congo). In this report, we report only the location of the

collected and analyzed samples in the figure 3. The detail on the lithology characteristics are available in the annex of the Technical report 02/07/2022.

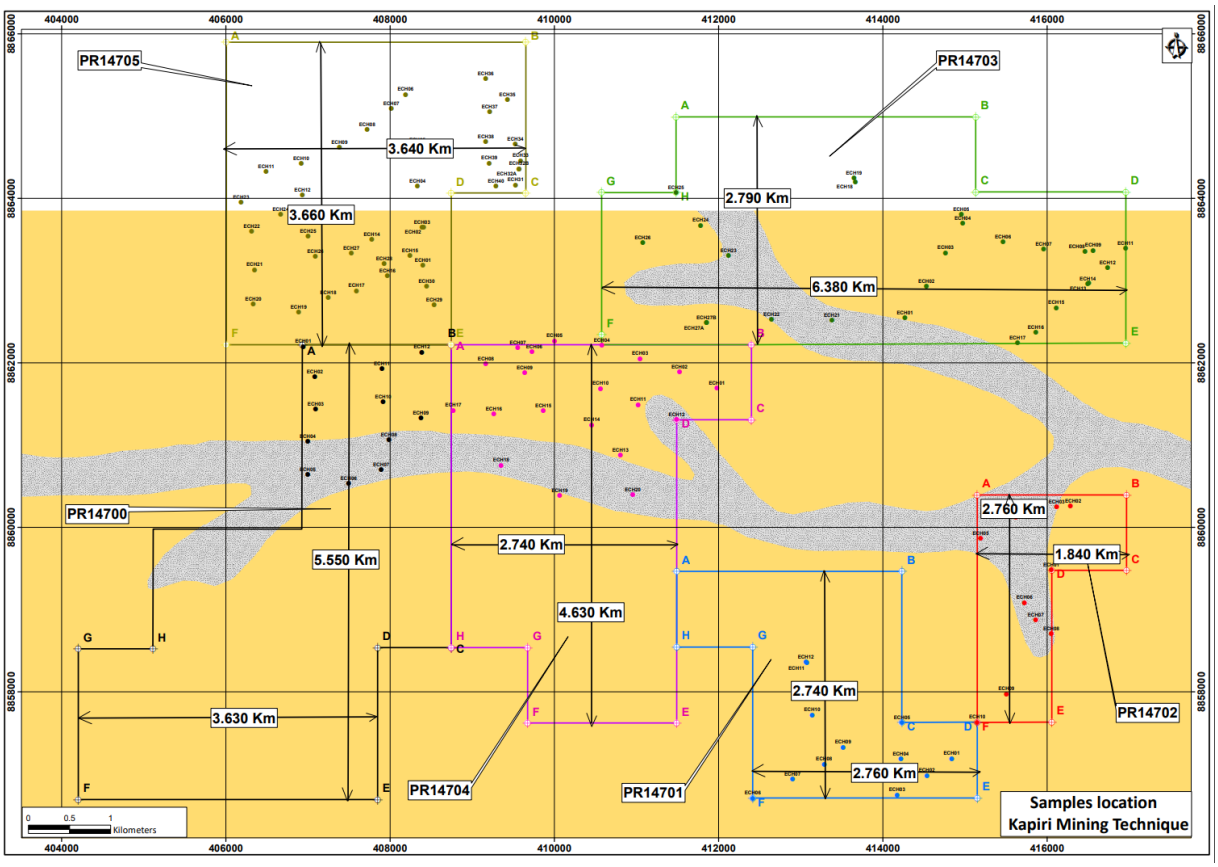

Figure 3: Geological map and location of samples collected in 2022

3. GREEN FIELD EXPLORATION 2023

3.1. Objective

The aims of the greenfield exploration program during the 2023 fieldwork were:

- identification and defining the potential of base and critical metals (Cu, Co, Pb, Zn) in the six concession.
- define the exploration target generation by using the classical exploration technics through the geological survey of the outcrops (fracturing and faulting zone, brecciation, hydrothermal alteration, structural analysis).
- mineralogy characterization of the ores and timing of this mineralization.
- determinate the lithostratigraphy position of the exploration target.

- define a possible temporal and spatial extension of the exploration target.

3.2. Geomorphology and structural geology

Fieldwork and structural analysis demonstrated that a bedding dip of the Biano rocks are range 1° to 16°, and sometimes these beds are horizontals. These dip values confirm a tabular structure of the “Plateau de Biano” as previous mentioned (François, 1987; Fig. 4). The outcrops of different lithology are available along the incised valley where the rivers are usually flow in this region. Satellite image combine with the fieldwork indicate that the Plateau de Biano was not intensively faulted as in case of the Lufilian arc.

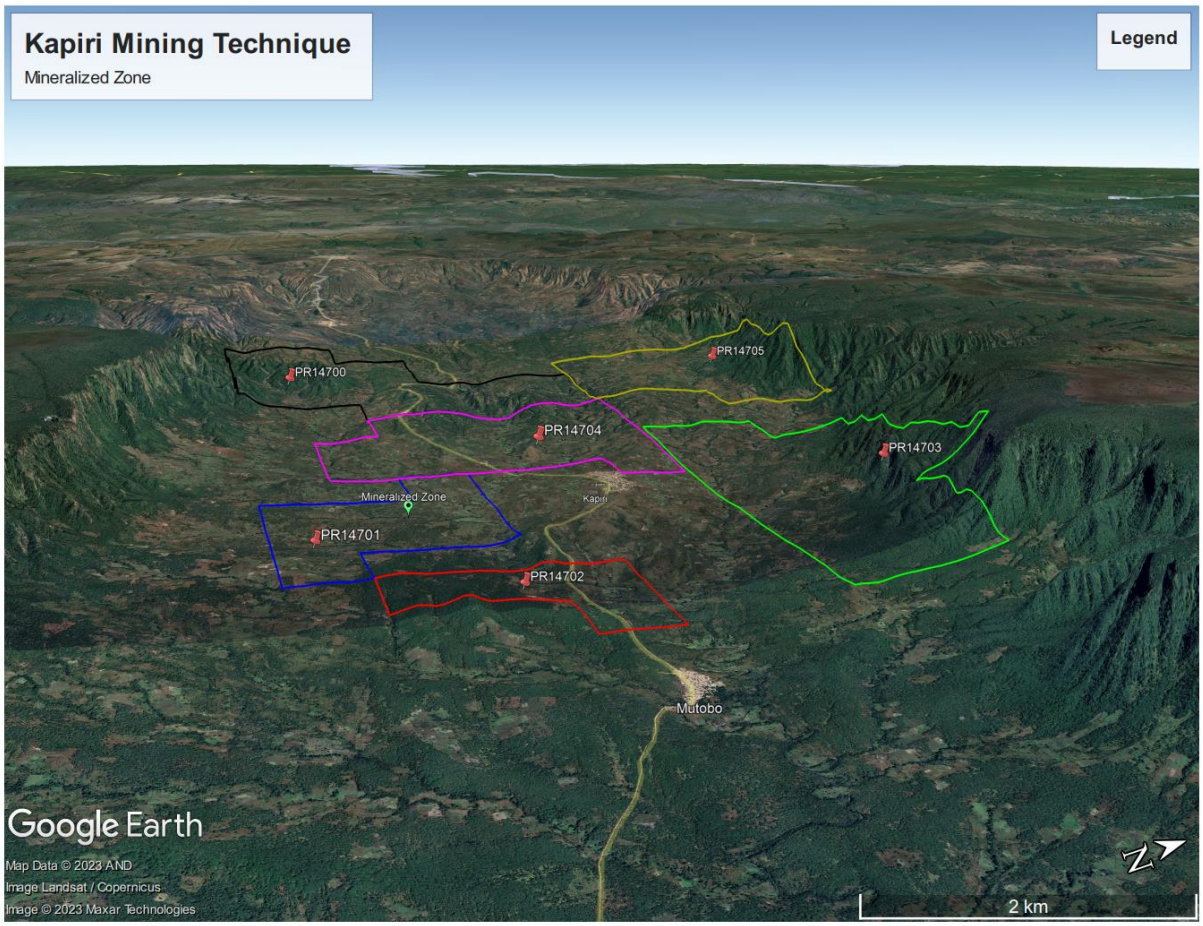

Figure 4: Location of the Kapiri Mining Technique and evidence of the Pande valley incised the Plateau de Biano.

Cross section oriented north-south and the geological survey of the outcrops along the incised valley and river make allowed to reconstruction the lithostratigraphy succession

and a direct correlation of each unity described in the PR 14700 and PR14704 in the south, and PR14703 and PR14705 in the north. These correlation confirm also a tabular structure of the Biano Group. A particular observation in the PR14704 is making by the presence of antiform described along the river. The main lithology is dominantly by the succession of dolostone , locally brecciated with development of the centimetric (10 to 50 cm size) parasite folds within the Sampwe Formation of the Kundelungu Group. The relationship of this antiform and the upmost Biano beds is not clear because it covered by a top soil (up 10 m of thick).

An others correlation and reflecting a tabular structure is shown by the extension of the clayey dolostone in both PR14701 and PR14702 concessions. This beds overlain and constituting the top of the mineralized beds described in the PR14702.

3.3. Lithostratigraphy and mineralization

The Katanga Supergroup is subdivided into four groups (Table 1; Cailteux and De Putter, 2019), from bottom to top, the Roan, Nguba, Kundelungu and Biano Groups. Each group is characterized by a specific type of mineralization (Mambwe et al., 2023). However the table 1 show the main lithology and base metal potential of each groups. About the Kapiri mining Technique is situated in the Biano Group, younger rocks than the Roan hosted the Cu-Co mineralization and both Nguba and Kundelungu Group well known for the Cu (Pb, Zn, Ag).

This lithostratigraphy position of the concession from Kapiri Mining Technique and its geographical position demonstrated that the Cu mineralization ession are not correlated to the deposit from the Roan Group such us Kamoto, Etoile, Ruashi and Tenke-Fungurume, and others deposit like Kamoa and Kipushi in the Nguba Group and Dikuluishi and Kapulo in the Kundelungu Group. Moreover, this lithostratigraphy position of the mineralization at Kapiri Mining Technique is unusually in the Katanga Supergroup and could be the first one if the detailed exploration will be completed.

The main lithology of the Biano Group described in these concession are the conglomerate made of the angular to rounded clast of quartzite, usually weathered on the subsurface and let the clast exposed in the argillaceous matrices, the red pinkish massive

arkose sandstone, the red pikinsh stratified and massive siltstone, the mudstone, shale, the clayey dolostone, dolomitic shale and massive to siliceous dolostone (Fig. 5). The Kundelungu rocks are present through the dolostone of the Sampwe Formation and only locally observed along the incised valley. The evidence of the lithology of both Roan and Nguba have not been identified and described during the fieldwork in all concession.

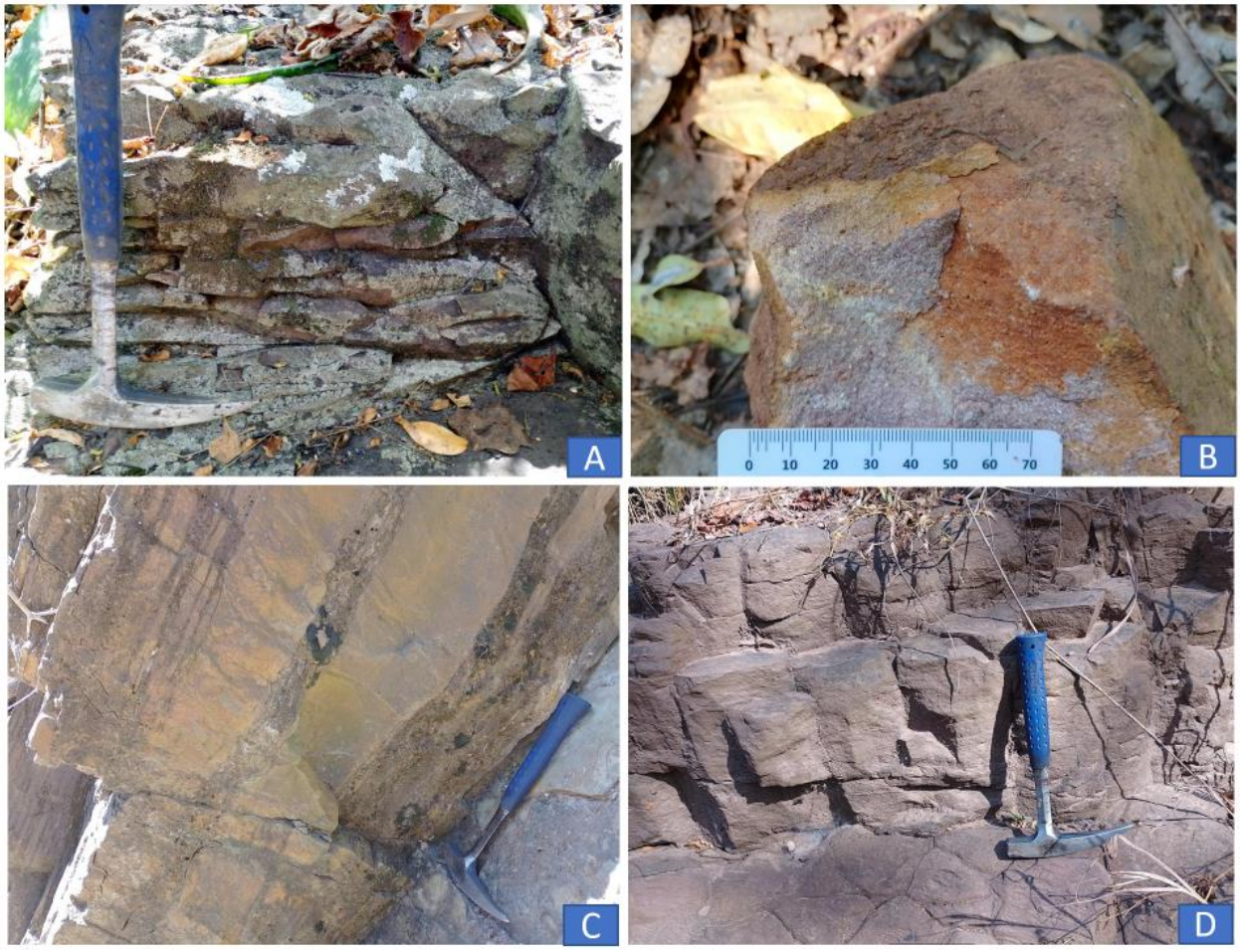

Figure 5:Lithology of the unmineralized rocks from the Biano: A) Clayey dolostone; B) Sandstone; C) Stratified dolostone; D) Mudstone.

	Gp	Sgp	Formation	Lithology	Ores bodies		Deposit/prospect	Geodynamic
Katanga Supergroup	Biano		Shangoluwe	Sedimetary breccias		Cu	Shangoluwe	Lufilian arc
			Kansenya	Conglomerate, sandstones, siltstone, shales and dolostone			Kapiri Mining Technique	Katanga foreland
	Kundelungu	Gombela	Sampwe	Sandstones and shales		Cu-Zn-Pb (Ag,Mo,Cd, Ge)	Mwitapwile	
			Kiubo	Sandstones,calcareous to dolomitic siltstones			Luemba	
			Mongwe				Shangoluwe	
		Bunkeya	Lubudi	Dolomitic and limestones			Dikuluishi	Katanga foreland
			Kanianga	Dolomitic siltstones and shales.			Kyaundji	Lufilian arc
			Lusele	Pink dolostone				
			Kyandamu	Diamictites		Cu	Diyenge	
	Nguba	Muombe	Monwezi	Dolomitic to dolomitic siltstones , and shales		Cu-Zn-Pb (Ag,Mo,Cd, Ge)	Lukufwe	Katanga foreland
			Katete				Kipushi, Lombe and Kengere	Lufilian arc
			Kipushi	Dolostomes and limestones				
			Kakontwe					
			Kaponda	dolomitic shales				
			Dolomie Tigrée	Striped withish dolostone, laterally shales				
			Mwale	Diamicites,shales ,siltstones to sandstones		Cu	Kamoa and Shanika	
	Roan	Mwashya	Kanzadi	Lenticular sandstones		Cu-Co (U, Ni)	Kipoi, Kileba	
			Kafubu	Carbonaceuos shales				
			Kamoya	Dolomitic siltstones				
				Mwashya Congomerates				
		Fungurume	Kansuki	Dolostones, pyroclastics			Shituru	
			Mofya	Dolostones				
			Tenke	Dolomitic shales, siltstones, dolostones.		Cu	Ditoma and Kasanga	
			Dipeta					
			Kwatebala	Clayey siltstones to sandstones				
		Mines	Kambove	Dolostones		Cu-Co (U, Ni)	Etoile,Kakanda, Kamoto, Mutanda Tenke-Fungurume, Ruashi Cu-Co	
			Kinsevere	Dolomitic shales				
			Kamoto	Dolostones				
		Musonoï		Hemaetitic clayey dolomitic siltstones to sandstones;basal conglomerate				
	Breccias							

Table I: lithostratigraphy of the Katanga Supergroup and base metal ores bodies (from Cailteux and De Putter, 2019; Mambwe et al., 2023).

3.4. Mineralization and exploration target

The Cu mineralization has been described only in the concession PR14701. It consists of the precipitation of the chalcopyrite and bornite associated to the pyrite in fractures, cleavage plan and bedding in the grey stratified clayey dolomite. The thickness of each beds range between 1 mmm to 100mm. The replacement of these Cu sulphides ores are

clear observed through the presence of malachite and Azurite (Fig. 6 and 7). In the overlain massive clayey dolostone, the bornite with minor chalcopyrite occurred in fractures and become absent if this formation is oxidized. The thickness of the mineralized beds still unknown because it is only partially outcropping along the valley and exposed in the artisanal well (<2m of depth). The lateral extension of the mineralized zone reaches recognized along the valley is around 10m. The euhedral fine to coarse crystal of pyrite are disseminated in the dolomite and not associated to the sulphides and supergene.

Figure 6: Copper mineralization (PR14701): A and B) Azurite (bleu) and malachite (green) occurred in bedding plan of the dolomitic shale; C and D) Azurite and malachite precipitated in fractures and bedding plan.

The Cu mineralization in PR14701 is not disseminated in the host rocks but controlling by fracturing and probably by dip faulting. However, this mineralization is epigenetic. The development of artisanal mining will not easy because the association of the chalcopyrite and bornite, azurite and malachite are evidence the presence of the mixed ores on the subsurface and the exploration target will be the sulphide ores in dipper. The mining

development will need an intense exploration in this concession for determinate the thickness of the mineralized zone and its lateral extension.

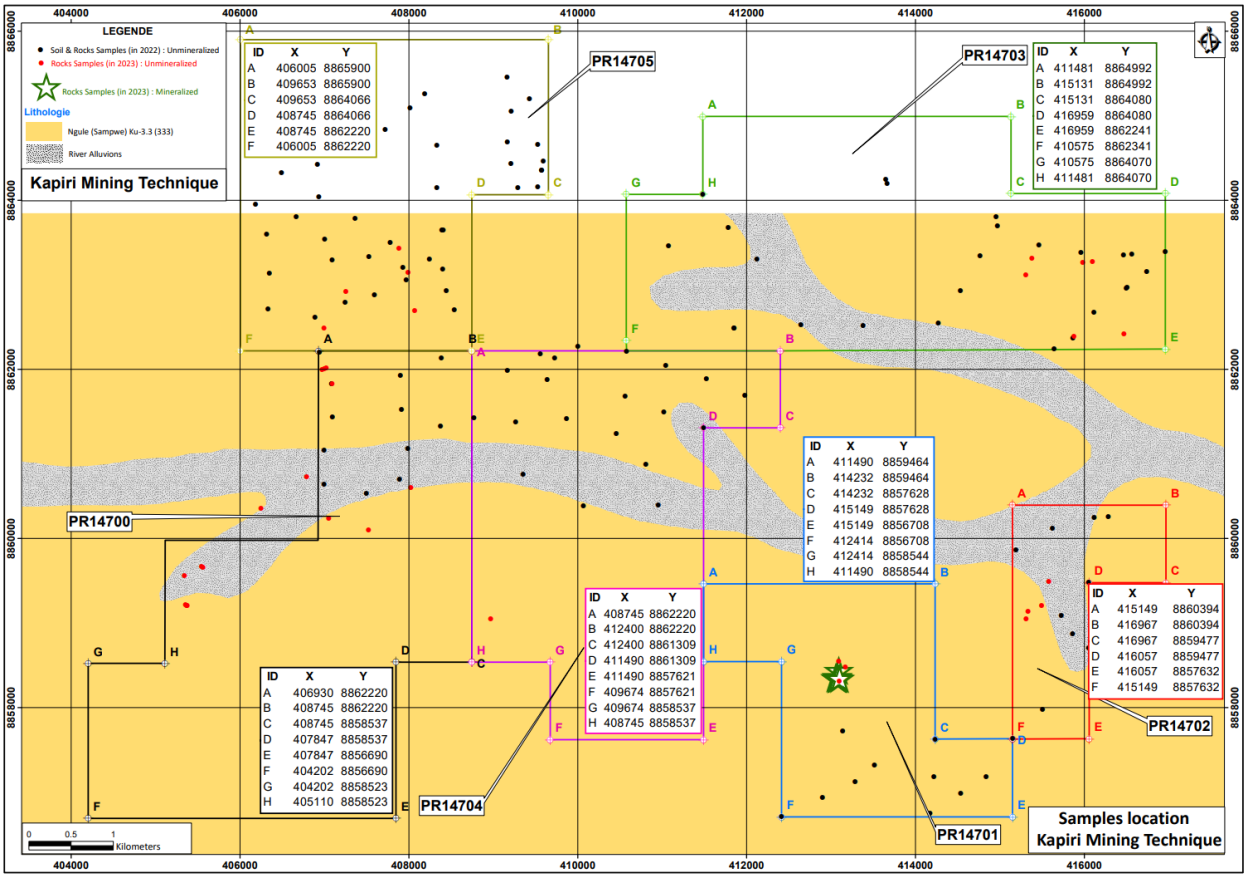

Figure 7: Location of samples and Cu mineralization area

Figure 8: Overview of the artisanal miner activities for the oxide ores (Azurite, malachite).

3.5. Samples preparation

48 representative samples have been collected during the fieldwork, described in detail and prepared for the ICP-MS analyses of Cu, Co, Pb, Zn and Ag.

Samples	Easting	Northing	Elevation	Color	Lithology	Mineralisation	Style of mineralization
KPC0001	413090	8858440	1174	Grey grenish	Massive dolostone	chalcopyrite and bornite	Cu ore in the fractures
KPC0002	413074	8858364	1165	Grey grenish	Stratified clayey dolostone	Azurite and malachite	Cu ores in fractures, bedding
KPC0003	413053	8858354	1166	Grey grenish	Stratified clayey dolostone	Malachite	
KPC0004	413069	8858366	1166	Grey reddish	Massive clayey dolostone		
KPC0005	413068	8858350	1169	Grey grenish	Stratified clayey dolostone	Azurite and malachite	Cu ores in fractures, bedding
KPC0006	413065	8858345	1169	Green	Massive clayey dolostone		
KPC0007	413072	8858346	1167	Grey grenish	Stratified clayey dolostone	Azurite and malachite	Cu ores in fractures, bedding
KPC0008	413081	8858350	1170	Grey grenish	Stratified clayey dolostone	Azurite and malachite	Cu ores in fractures, bedding
KPC0009	413081	8858350	1170	Grey grenish	Stratified clayey dolostone	Malachite	Cu ores in fractures, bedding
KPC0010	413081	8858350	1170	Grey grenish	Stratified clayey dolostone	Azurite and malachite	Cu ores in fractures, bedding
KPC0011	**Standard**						
KPC0012	413081	8858350	1170	Grey grenish	Stratified clayey dolostone	Azurite and malachite	Cu ores in fractures, bedding
KPC0013	413081	8858350	1170	Grey grenish	Stratified clayey dolostone	Azurite and malachite	Cu ores in fractures, bedding
KPC0014	413077	8858348	1177	Grey grenish	Stratified clayey dolostone	Malachite	Cu ores in fractures, bedding
KPC0015	413101	8858344	1177	Grey grenish	Stratified clayey dolostone	Malachite	Cu ores in fractures, bedding
KPC0016	413098	8858315	1178	Grey grenish	Massive clayey dolostone		
KPC0017	413170	8858483	1180	Grey reddish	Massive clayey dolostone		
KPC0018	413093	8858545	1173	Grey grenish	Massive clayey dolostone		Pyrite disseminated
KPC0019	415312	8859047	1161	Grey reddish	Massive clayey dolostone		
KPC0020	415333	8859134	1154	Grey reddish	Massive clayey dolostone		
KPC0021	415494	8859206	1145	Grey reddish	Massive clayey dolostone		
KPC0022	**Blank**						
KPC0023	415578	8859489	1144	Grey reddish	Massive clayey dolostone		
KPC0024	405370	8859208	1327	Brun	weatherethed clayey dolostone		
KPC0025	405375	8859206	1326	Brun reddish	weatherethed clayey dolostone		
KPC0026	405355	8859215	1327	Red yellowish	Massive sandstone		
KPC0027	405342	8859558	1311	Grey	Massive dolostone interbbedded by stratified grey dolostone		
KPC0028	405547	8859665	1295	Grey	Stratified dolostone		
KPC0029	405560	8859664	1298	Brun yellowish	stratified dolostone		
KPC0030	406249	8860357	1303	Brun pinkish	Clayey dolostone		
KPC0031	408970	8859048	1276	Grey	Massive micaceous clayey dolostone		
KPC0032	406790	8860735	1273	Grey reddish	Massive clayey dolostone		
KPC0033	**Standard**						
KPC0034	407092	8861836	1278	Grey grenish	Stratified clayey dolostone and micaceous		
KPC0035	406974	8861996	1284	Grey reddish	Massive clayey dolostone		
KPC0036	406999	8862005	1283	Grey grenish	Stratified clayey dolostone		
KPC0037	407021	8862020	1276	Grey grenish	Massive clayey dolostone		
KPC0038	406996	8862492	1309	Red pinkish	Massive clayey dolostone		
KPC0039	407253	8862921	1307	Red pinkish	Stratified clayeydolostone		
KPC0040	416471	8862420	1192	Brun	Massive clayey dolostone		
KPC0041	416098	8863275	1236	Red pinkish	Massive clayey dolostone		
KPC0042	415984	8863266	1227	Red pinkish	Massive silstone		
KPC0043	415382	8863310	1220	Red pinkish	Stratified clayeydolostone		
KPC0044	**Blank**						
KPC0045	415307	8863120	1195	Grey	Stratified clayeydolostone		
KPC0046	415878	8862387	1194	Red pinkish	Stratified clayeydolostone		
KPC0047	407053	8860242	1286	Red pinkish to yellowish	Stratified clayeydolostone		
KPC0048	407524	8860102	1279	Red pinkish	Massive clayey dolostone		
KPC0049	408024	8860600	1255	Grey dark	Massive dolostone		
KPC0050	408070	8862700	1310	Red pinkish to yellowish	Stratified clayeydolostone		
KPC0051	407993	8863150	1330	Red pinkish to yellowish	Stratified clayeydolostone		
KPC0052	407883	8863436	1343	Grey	Siliceous dolostone		

Table I: Description of collected samples

The blank samples characterized by the unmineralized sand and two type standard (AMIS 0301 for TCu=1.181 and TCo= 0.215; AMIS 0357 for TCu=2.229 and TCo= 0.865) haven been introduced on the samples list for the Quality Assurance & Quality Control (QAQC) as defined in the Table I. Regarding the tabular structures of the sedimentary succession in this region in the one hand, and avoid collecting the samples without any economic implication to the mineralization along the same beds (cf. horizontal beds) in the second hand, the samples were collected randomly if it is necessary in reference of the mineralization and the representative for each unity.

4. RECOMMENDATION AND CONCLUSION

4.1. PR14700, PR14702, PR14703, PR14705

The presence of Cu mineralization or others base metal evidence on the subsurface has not been demonstrated in these concessions. This fact is justified by these concession exposed the barren rock of the upmost part of the Biano Group such us the sandstone, siltstone, shale and conglomerate and the described mineralized beds from PR14701 has not been intercepted on the outcrop. The lithostratigraphy position of mineralized beds is interpretated as situated in the footwall of the Biano Group. Along the river, the identified antiform made of the succession of stratified and massive dolostone of the Sampwe Formation in the Kundelungu Group is locally brecciated without any evidence of mineralization. The fractures in the upmost part of the Biano Group are style open and not filled by veins and not linked to the possible hydrothermal alteration. This is indicating the poorly fluid flow in the upmost of the Biano Group. In this case, an expensive greenfield exploration through the dipper drilled holes and tentative of geophysic technique for looking for the faulting zone and the sulphide in the mineralized beds in dipper.

The geochemical of soil and rock on the subsurface are not encouraged because les beds are tabular with less possible for collected the representative samples could be conducted to the anomalies zones. Regarding the lithostratigraphy position of the mineralized beds in PR14701, more complex and expensive exploration need to be completed.

4.2. PR14701

This concession is recommended as an excellent for exploration because of the outcropping host the Cu mineralization. The lateral extension on the surface is only described along the 10m without any exact thickness of the Cu ore body. Here are the suggestion:

- The grade of the Cu and others metals such us Pb, Co, Zn and Ag will be given by the chemical analysis through the ICP-MS analysis.
- Complete a detail geological survey along the incisive valley through the mapping, lithology description including the rocks geochemistry. This step could follow by the RC drilling before regarding the diamond operation.

The presence of the Cu mineralization is not allowed to design this concession of available of a direct mining operation. However, the geometry (thickness and extension) of the Cu ore body in this concession must to be improve by detailed exploration such us the drilling. Finally, the lithostratigraphy position of the Kapiri Mining Technique was not explored before and the ores association were not been described. It is the newly exploration target generation and there is not others deposit/occurrences described in this unity. The exploration will a newly in the geological history of the Katanga Copperbelt. This a reason we suggest same additionally chemical analysis such us Cu with Pb, Zn, Co, Ag will be welcome in this exploration.

5. REFERENCE

François, A., 1987. Synthèse géologique sur l`arc cuprifère du Shaba (Rép. du Zaïre). Centenaire Société Belge de Géologie, pp. 15-65.

François, A., 2006. La partie centrale de l'Arc cuprifère du Katanga: Tervuren (Belgique). African Geosciences collection 109, 1-70.

Haest, M., Muchez, Ph., 2011. Stratiform and Vein-Type Deposits in the Pan-African Orogen in Central and Southern Africa: Evidence for Multiphase Mineralisation. Geologica Belgica 14 (1–2), 23-44.

Master, S., 2021. Stratabound, Sediment-Hosted Cu-Co Deposits (with special reference to the Central African Copperbelt). In: Alderton, David; Elias, Scott A. (eds.) Encyclopedia of Geology, 2nd edition. 5, 899-913.

Mambwe, P., Swennen, R., Cailteux, J., Mumba, C., Dewaele, S., Muchez, Ph., 2023. Review of the origin of breccias and their resource potential in the central Africa Copperbelt. Ore Geology Reviews 156, 105389.