PACIFIC MINING AND EXPLORATION COMPANY

Technical Report on Preliminary Study of Yashikira Gold Prospect, Southwestern Nigeria

Submitted By

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1. INTRODUCTION

This preliminary work constitute an initial reconnaissance survey of Yashikira area, involving collation, compilation and interpretation of available pre-existing exploration data relating to gold mineralization in the area. The visit which spanned over a period of ten days involved data gathering from relevant literature search, personal communications with locales involved in crude artisanal mining, geological spot checks, structural mapping, and sample grabbing. The collation, processing, cursory laboratory analysis and interpretation of the data revealed the probable areas of gold mineralization in the area.

In the present study, samples for gold prospect investigation were obtained from the sub-surface through surface drilling method using hand huger and from the grab samples around pre-existing pits and trenches presently being worked and or abandoned borough pits by artisanal miners. A total of 21 samples comprising 14 drilled or grabbed rocks, 4 soils and 5 stream sediment samples whose depths of recovery ranges from 0.5m to 1.5m down the drilled hole and 1m to 8.5m on cliff surfaces of abandoned mining borough pits. Lithological types and disposition, structural trends and their constraints on the distribution of gold mineralization were noted for further studies as listed in the set of recommendations at the end of this report.

1.1 Scope of the Study

The ultimate objective of this work is to evaluate the economic feasibility of the reported gold prospect around Yashikira in terms of its occurrence, ore grade, reserve estimate and economic potential. However, the scope of the present study includes the following:

i. Acquisition of topographic map and relevant literatures.
ii. Geological spot check on rock outcrops with a view to establishing the lithologies hosting the gold mineralization for further studies.

iii. Grab Sampling and documentation.

iv. Field data collection using GPS receiver, compass clinometers, and camera.

v. Interpretation of geochemical fire assay results to determine possible areas of gold enrichment; and

vi. Map production, report compilation, and submission.

1.2 Location and Accessibility

The study area is located around Yashikira in Barutein local government area of Kwara State and bounded by latitudes 9° 32′ 30″N to 9° 37′ 30″N and longitudes 3° 38′ 30″E to 3° 43′ 30″E, covering about 170 square kilometers. The gold prospect is located at about 20km northeast of Kosubosu, headquarters of the Barutein local government area (Figure 1). The gold prospect can easily be accessed from Shaki – Ilesha Baruba – Kosubosu road leading to Benin Republic.

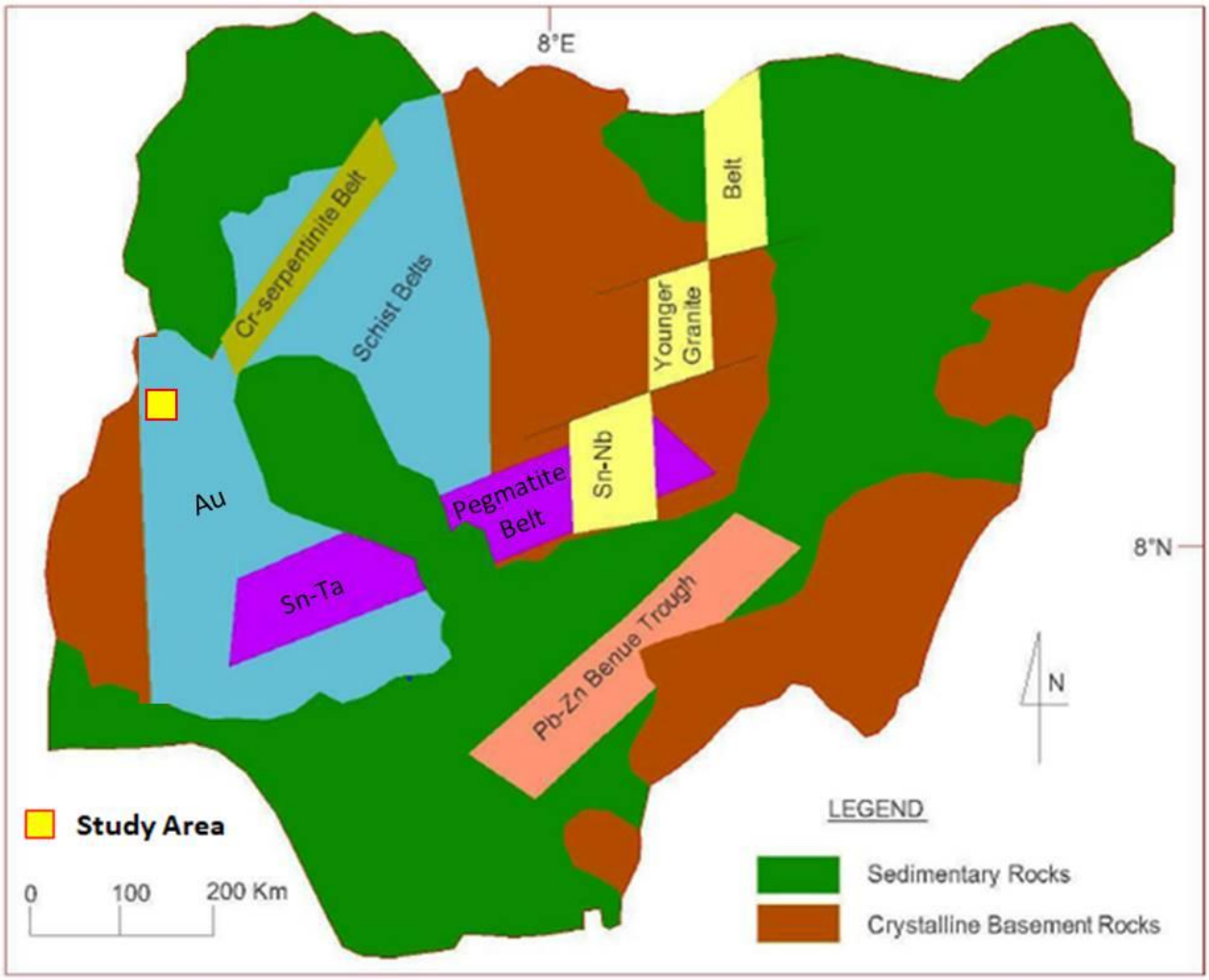


Figure 1: Metallogenic Provinces of Nigeria showing the study location around Kosubusu.

2. GEOLOGICAL INVESTIGATION

2.1 Geological Spot Checks and Traverses

The study area presents a gently rolling peneplain to slightly undulating topography, which are usually characterized by a general dearth of rock outcrops. Traverses were therefore focused on few outcrops and abandoned excavations by artisanal miners using available footpaths, river channels and surface drainage gullies to assess the few poorly exposed outcrops on ridge tops and break of slopes for spot checks to characterize lithology underlying the area. Accessibility to rock outcrops for geological observations was achieved using a Germain GPS device, topographical base map, and Bruton compass, while great efforts were deployed to recover fresh representative rock samples using Eclogite sledgehammer and chisel. Significant observations were, however, achieved from abandoned excavations and fresh dugout pits of ongoing artisanal mining activities in the area.

2.2 Geology of the study area

Available field data obtained so far revealed that the study area is mainly underlain by Banded gneiss, Granite gneiss, Quartzite which grades into Slate, Amphibolite, and Fine-grained biotite granite with other minor un-mappable intrusive such as pegmatite and vein quartz. Exposures of the Biotite gneiss or Banded gneiss were mapped in the southwestern part the study area, occurring as a strip of rock characterized by NE-SW trending metamorphic fabrics and may, in fact, be the oldest rock which forms the basement on which other rocks have been unconformably overlain (Figure 2). The next oldest rock, in terms of stratigraphic hierarchy, is the granite gneiss which constitutes the most prominent lithology, underlying about 75% of the study area and also displaying NE-SW trending deformational fabrics.

Amphibolite, Quartzite and slate form the metasedimentary rock units that are mostly confined to the northwestern part of the study area, but are however observed as pockets of enclaves within the older gneissic rocks. Amphibolite is mapped as relicts of low-lying mafic rocks characterized weak foliation particularly on weathered surfaces while fresh surfaces exhibit greenish tinge, ostensibly due to the preponderance of green amphibole (hornblende) in the rock's mineralogy. Quartzite also shows NE-SW trending deformation fabrics and appear to have suffered from the regional transpressive deformational fabrics that characterize the Anka-Yauri-Iseyin_(AYI) transform fault line around which the present study area lies. The widespread transpressive forces possibly led to incipient crenulation folding in the micaceous quartzite giving the rock a flaggy texture. The quartzite was observed to grade into low grade slate with simple slaty cleavage as the conspicuous structural fabrics.

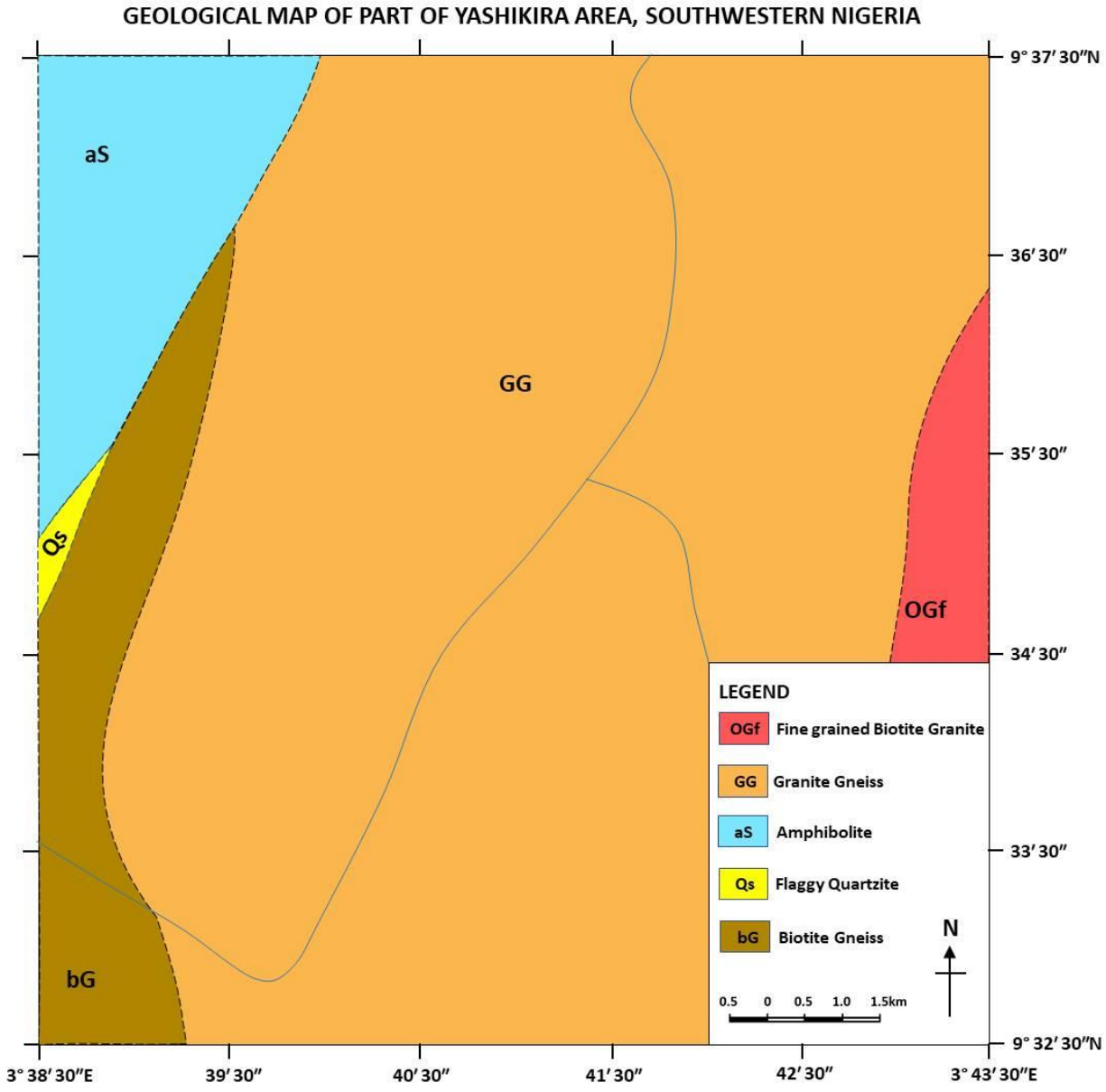


Figure 2: Geological map of Ilorin-Omuaran-Osi Areas showing the study location.

Evidence of the Pan-African thermo-tectonic event that affected the study area was observed in the eastern part where a large volume of fine-grained biotite granite intrudes through the basement gneisses and the meta-sediments. The granite, pegmatite and vein quartz represent the late stage intrusives that were emplaced during the waning stage of the Pan-African orogeny. The observed pervasive intrusions of quartz-oligoclase veins and some localized ferruginization of the host rocks into hardpan can possibly serve as evidence of the pneumatolytic hydrothermal fluid that remobilize and reconcentrate gold along some narrow bands of quartz veins which are in places disseminated

into the host rocks following metamorphic degashing that accompanied the waning stage of the Pan-African events.

3. GEOCHEMISTRY

Out of a total of 21 rock and in-situ soil samples collected in the field, 7 were prepared and sent to SGS in South Africa for laboratory geochemical through fire assay technique with a detection limit of 0.01 as presented in table 1 below. The table shows that all the samples analyzed are have enrichment factors ranging from about 200 to 54,000 times richer than the crustal abundance of gold in earthly materials.

Table 1: Gold enrichment factors in soil and rock samples from Yashikira area

Sample	WTG (g)	Au (mg/kg)	Au (ppm)	Sample Enrichment
S1	139.05	0.03	3	600
L2 S2	227.2	0.04	4	800
L2 S3	224.46	0.02	2	400
S7	236.96	<0.01	<1	<200
S8	271	0.01	1	200
S11	227.63	2.7	270	54,000
S18	254.42	0.06	6	1,200
Crustal Abundance			0.005	1

4. CONCLUSION AND RECOMMENDATION

4.1 Conclusion

This preliminary geological spot checks, rock and soil sampling, and observation on structural features around Yashikira gold prospect on a scale of 1:50,000 was carried out to establish the economic potentials of the reported gold mineralization around the study area. Field observations and the activities of artisanal miners in the area suggest that the prospect might be extensive and its economic viability in terms of grade and reserve need to be determined for immediate exploitation. The beehive of mining activities of artisans who are busy wining gold nuggets from crushed rocks using cyanide leaching technique lend credence to the high possibility of having a good reserve of gold that could adequately be mined on large scale if properly investigated.

4.2 Recommendation

For a detailed appraisal of the gold deposit, in order to complement this preliminary study, the following further investigations need to be carried out to avoid speculative decisions:

4.2.1 Geological Mapping

A more detailed mapping of the area that will involve more detailed and systematic traverses would be required particularly around and within the metasedimentary outcrops;

4.2.2 Rock and Soil Sampling

Sampling would be done within the pits and trench channels as well as on exposed outcrops and grab samples for a more comprehensive laboratory elemental composition determination to be carried out in MS Laboratory in Canada.

4.2.3 Pitting

Pitting may be carried out to get the sub-surface geological information particularly to follow-up sub-vertical mineralized veins. The selection of pitting points would be done in such a way as to conform to the direction of exploratory profiles of the surveyor for easy resource estimation as well as to determine the areas of prominent gold mineralization.

4.2.4 Trenching

Exploratory trenches may be desirable to be excavated in order to delineate the sub-surface continuation of the gold ore bodies particularly at the boundary areas. The alignment of trenches would be made to conform to the direction of exploratory profiles. Excavation of both the pits and trenches would be done manually using the locals and would be carefully logged and documented.

4.2.5 Core Drilling

Some exploratory boreholes may be required to be drilled and logged in order to confirm the presence and thickness of deeply seated gold-bearing veins as may be recommended from both geological and geophysical observations.

4.2.6 Geochemical Analysis

Samples obtained from the field may be required to be further subjected to geochemical analysis using XRF and ICPMS. This analysis would be required to characterize the chemical composition of the samples.

4.2.7 Ground Geophysical Survey

The objective of this geophysical study is to use the Electrical resistivity and Magnetic methods to determine the general overburden thickness and the average thickness of the gold ore bearing bodies and to establish the lateral extent of the gold bearing lithologies. This would be done to enhance the quality of the geophysical result in revealing the subsurface information about the gold mineralization in the area.

4.2.8 Resource Estimation

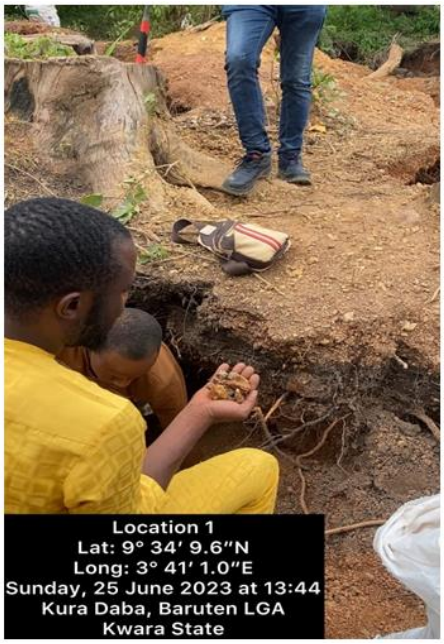
Haven carried out all the above-proposed studies, a fair resource estimation of this iron ore deposit could be achieved.

FIELD ITINERARY

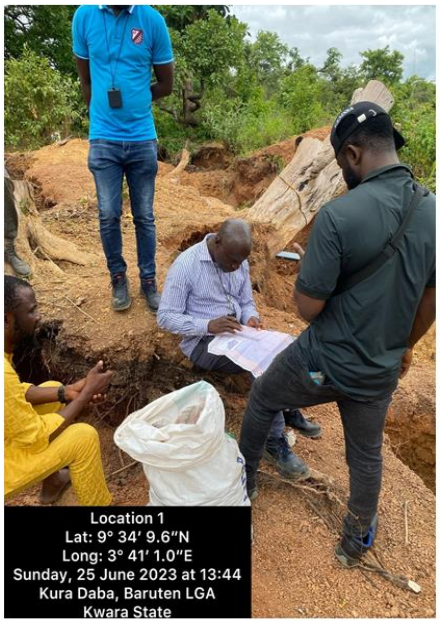
Date: 25/06/2023
Location 1
Coordinates 9° 34′ 9.6″N
3° 41′ 1.0″E
Rock description; Active artisanal mining site.
Sample 1

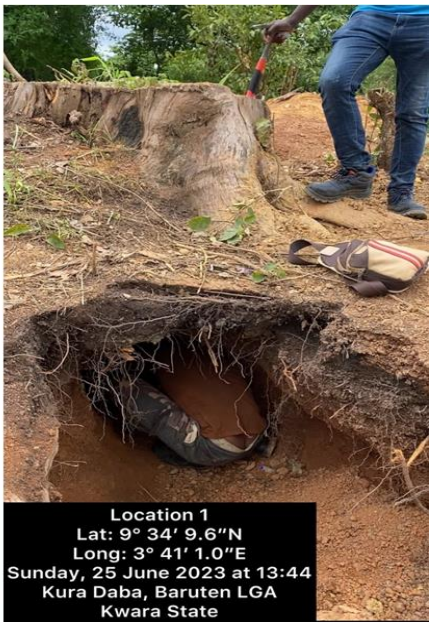
1. Grab samples
2. Soil samples

Both samples were taken at a depth of 1.5m. mineralized, probably Gold. Veins trending NW-SE.

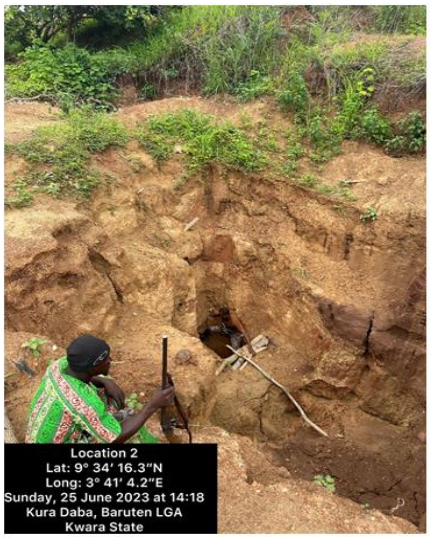


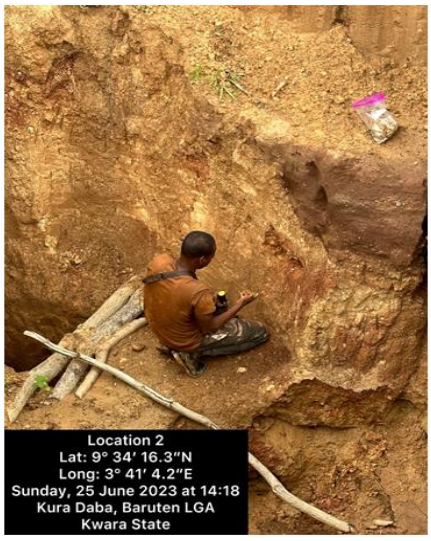




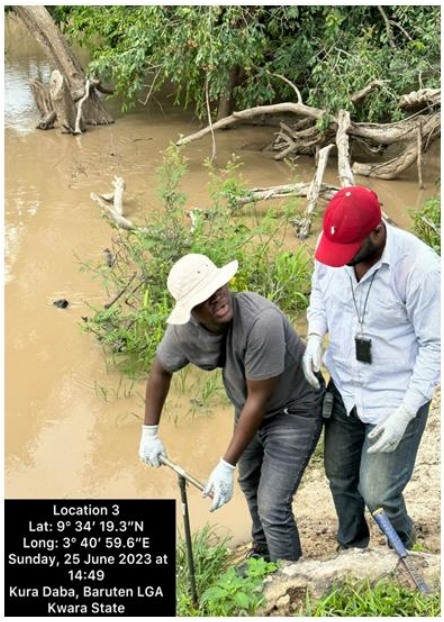


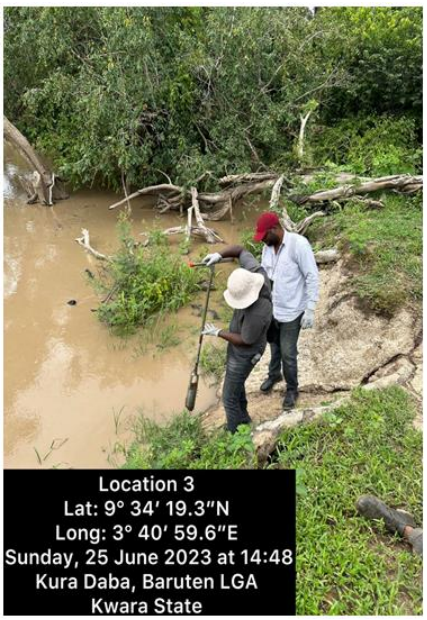
Location 2
Coordinates 9° 34′ 16.3″N
3° 41′ 4.2″E
Elevation 300m
Sample 2: Sediments taken at 10m depth at the abandoned artisanal gold mine. Yellowish brown color
Sample 3: sample taken from depth of 8.5m at the same site. brownish color
Rock description; Abandoned artisanal mining site





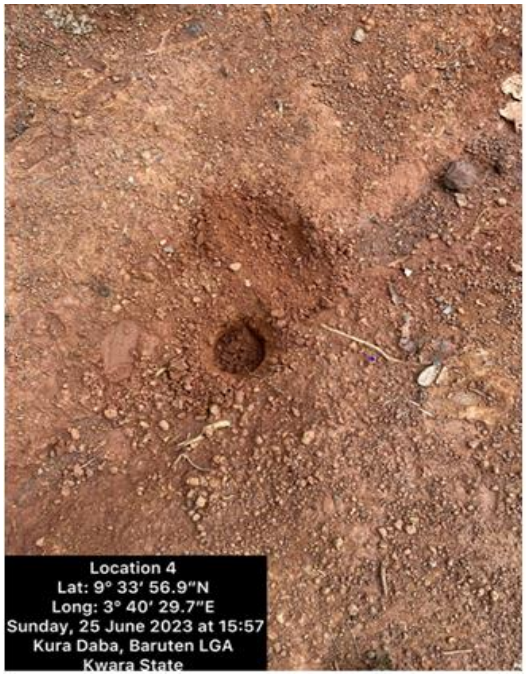
Location 3
Coordinates 9° 34′ 19.3″N
3° 40′ 59.6″E
Sample 4: Riverbank sample, fine –medium grain, dark greyish, taken at about 2.3m depth
Description: River channel, Big meandering river, width of about 25m

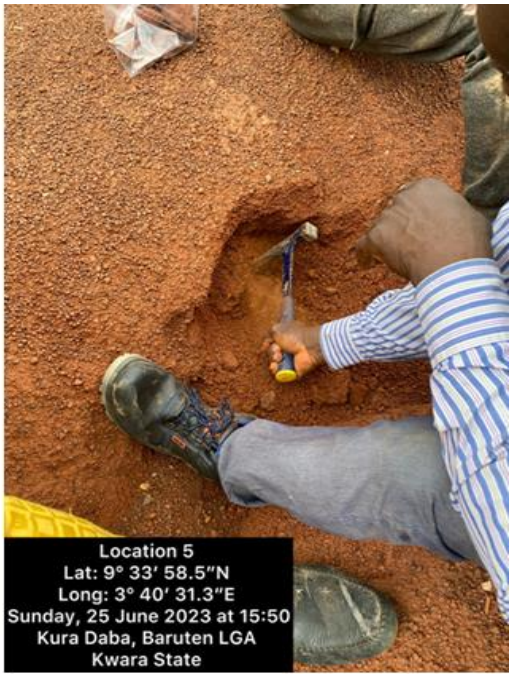




Location 4
Coordinates 9° 33′ 56.9″N
3° 40′ 29.7″E
Sample 5: Reddish brown soil sample taken at 0.1m depth, fine – medium grain
Description: presence of surrounding hard pan

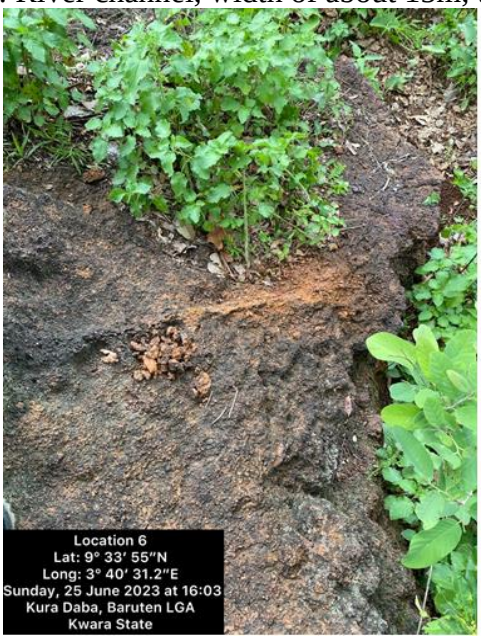
Location 5
Coordinates 9° 33′ 58.5″N
3° 40′ 31.3″E
Sample 6: Reddish brown soil sample taken within an erosion lane at a depth of about 0.2m
Description:

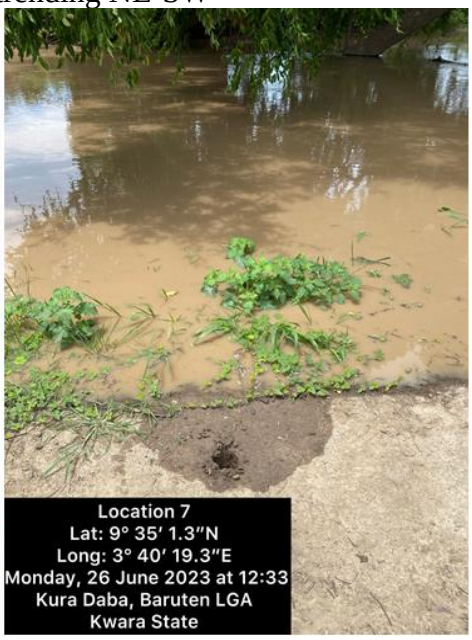




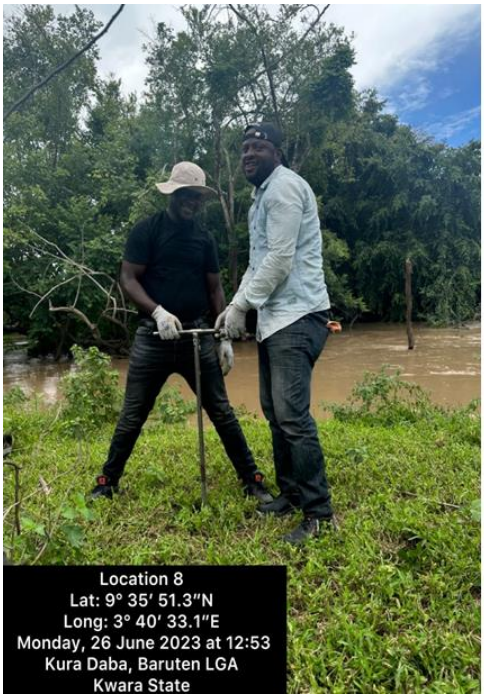
Location 6
Coordinates 9° 33′ 55″N
3° 40′ 31.2″E
No sample taken
Description: weathered basement rock with veins trending NE-SW. Some veins trending NS direction

Date: 27/06/2023
Location 7
Coordinates 9° 35′ 1.3″N
3° 40′ 19.3″E
Sample 7: Riverbank sample, fine –medium grain, brown color, taken at about 1.2m depth
Description: River channel, width of about 15m, trending NE-SW



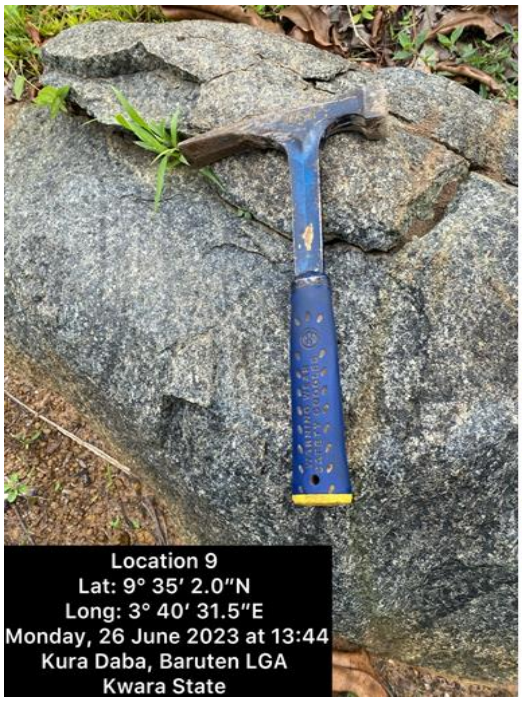


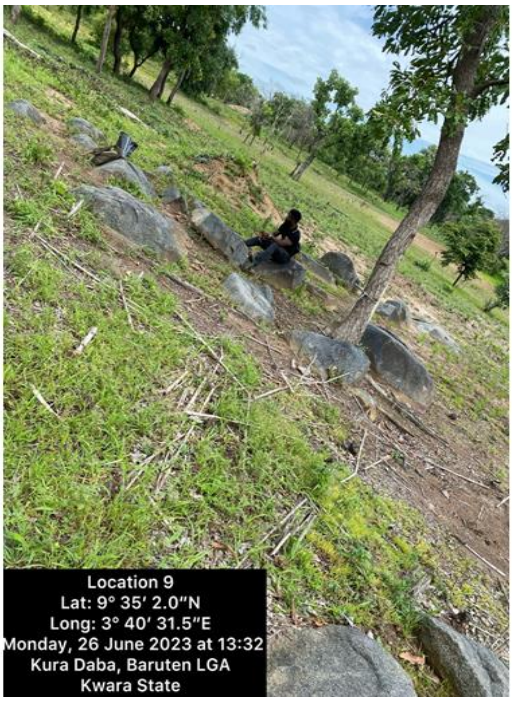
Location 8
Coordinates 9° 34′ 51.3″N
3° 40′ 33.1″E
Sample 8: Riverbank sample, fine –medium grain, greyish brown color, taken at about 1.2m depth.
Description: River channel, width of about 23m.





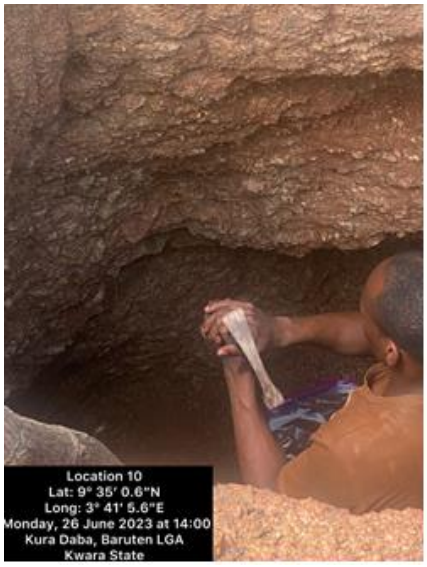
Location 9
Coordinates 9° 35′ 2.0″N
3° 40′ 31.5″E
Sample 9: Grab sample
Description: Low-line outcrop, gneiss but the bands are not well defined. Probably amphibolite. weakly foliated, coarse grain. Presence of veins and joints.

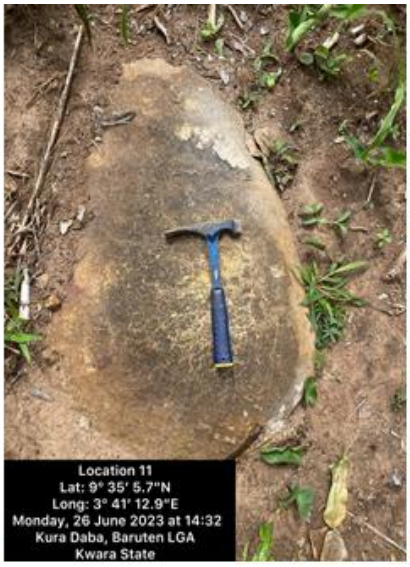




Location 10
Coordinates 9° 35′ 0.6″N
3° 41′ 5.6″E
Sample 10: Grab sample
Description: Sample taken from an abandoned artisanal mining site at a depth of about 2.1m. brownish color, fine grained.
N.B: Not on river channel as shown on map, the river probably plotted wrongly

Location 11
Coordinates 9° 35′ 5.7″N
3° 41′ 12.9″E
Sample 11: Grab sample
Description: sample taken at an abandoned artisanal mine site at a depth of approximately 3m. brownish color, quartz rich, intrusive body.
N.B: A small lowlying outcrop seen west of the abandoned gold mine. No sample picked. Lots of hard pans around this location. Observations show that most of the artisanal mines are located around the areas where the hard pan occur.



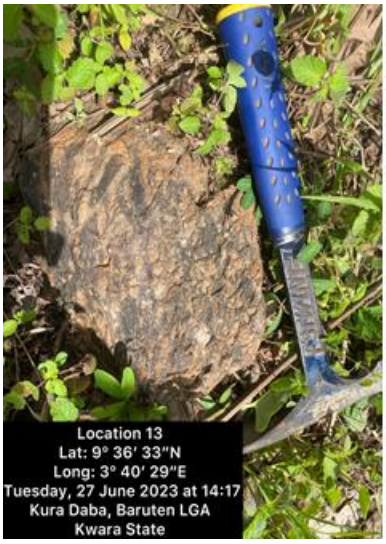




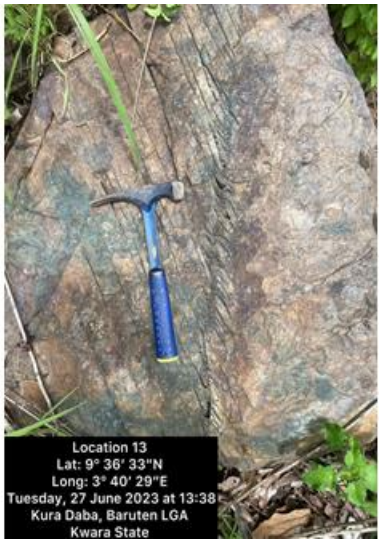
Date: 27/06/2023
Location 12
Coordinates 9° 36′ 16.3″N
3° 40′ 26.0″E
Elevation: 350m
Sample 12: Grab sample
Descript4ion: massive outcrop, foliated, presence of veins, bandings, veins are crosscutting. Metasediments, quartzite or slate??
Strike/dip: 180/60
Joint4s EW direction
Veins: NE-SW directions generally

Location 13
Coordinates 9° 36′ 33″N
3° 40′ 29″E
Elevation: 350m
Sample 13: Grab sample
Description: massive outcrop, extension of location 12, probably grading from quartzite in location 12 to slate in locat4ion 13. slate or quartzite??
Structures include: veins, joints
Strike/dip: 197/68 200/68







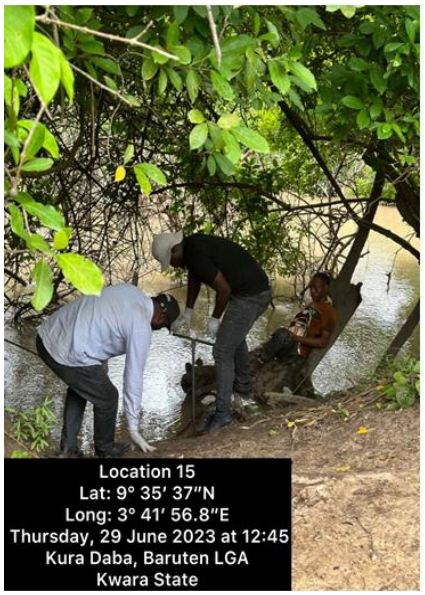


Date: 29/06/2023
Location 14
Coordinates 9° 36′ 31.6″N
3° 40′ 00″E
Elevation: 290m
Sample 14: Grab sample taken from rubbles around the area
Sample 15: soil sample taken at the foot of the hardpan heap at a depth of 0.38m. fine –pebble rocks, brown color
Description: massive hard pan heap, weathered pegmatitic rocks found in places
Remarks
According to local artisanal miners, hard pan are always areas of interest in these locality for Minerals such as gold, tourmaline etc. the presence of pegmatitic rocks around this area is a pointer to the possibility of gold rich veins in the subsurface. ferromagnetic minerals likely present.



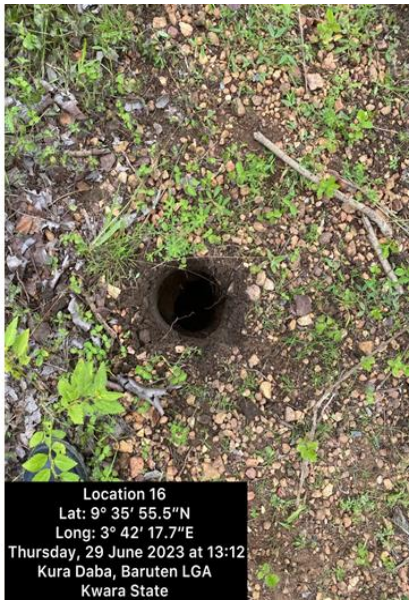
Location 15
Coordinates 9° 35′ 37″N
3° 41′ 56.8″E
Elevation: 280m
Sample 16: Riverbank sample, fine –medium grain, brown color, taken at approximately 2m depth
Description: River channel, width of about 17m.

Location 16
Coordinates 9° 35′ 55.5″N
3° 42′ 17.7″E
Sample 17: Sample taken from regolith
Description: Regolith??









Location 17
Coordinates 9° 36′ 02.8″N
3° 42′ 40.02″E
Elevation: 288m
Sample 18: Riverbank sample, coarse - pebble grain, brown color, taken at approximately 1.2m depth
Description: River channel, width of about 17m.

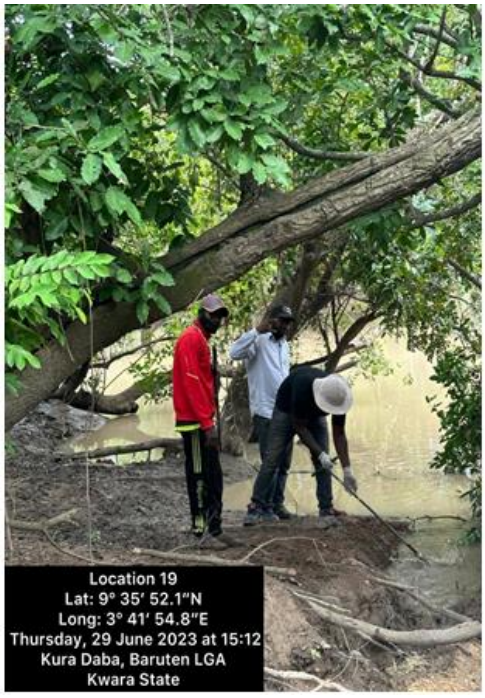
Location 18
Coordinates 9° 36′ 10.6″N
3° 43′ 0.41″E
Elevation: 310m



Sample 19: Grab sample
Description: low line outcrop, pegmatite vein trending NE-SW

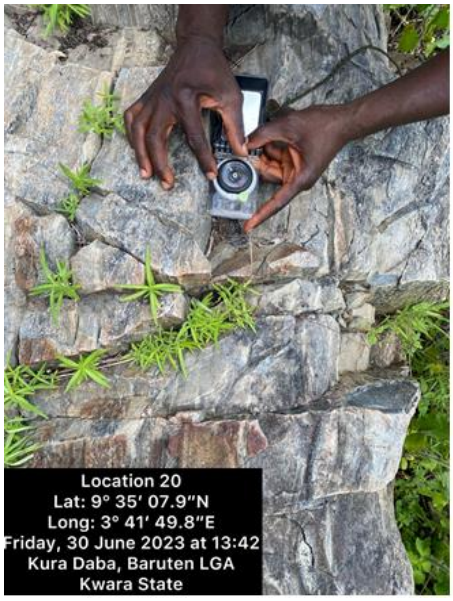
Location 19
Coordinates 9° 35′ 52.1″N
3° 41′ 54.8″E
Elevation: 283m
Sample 20: Riverbank sample, brownish grey color, taken at approximately 2.5m depth rich in muscovite and biotite
Description: River channel, width of about 10m, weathered schist, foliated, highly weathered, fine-medium grain size

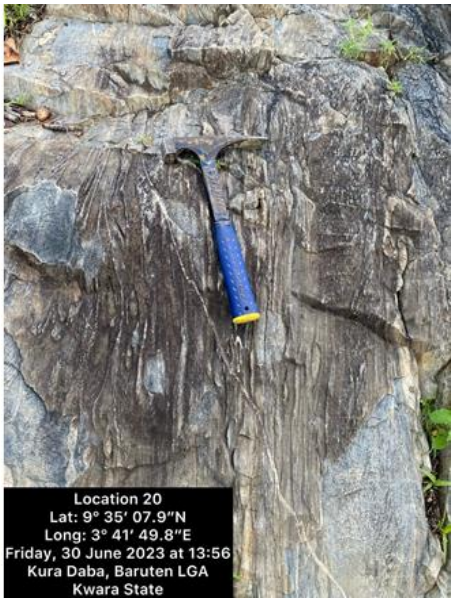


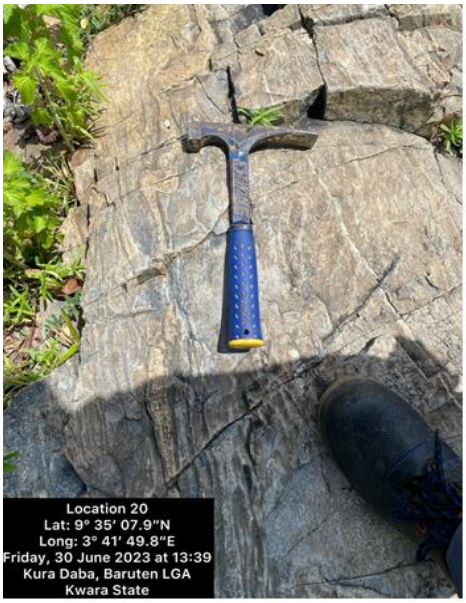


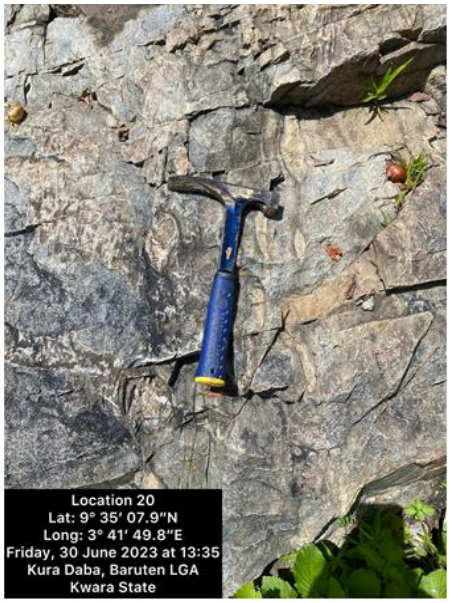
Date: 30/06/2023
Location 20
Coordinates 9° 35′ 07.9″N
3° 41′ 49.8″E
Elevation: 292m

Sample 21: Grab sample
Description: low line outcrop, presence of folds (isoclinal), axial planar cleavages present, foliations present (insipient foliation planes). Banded gneiss (stromatic gneiss/migmatite)
Joints trend: 285° (120), 320° (63), 090° (20)
Strike/dip: 035°/85°W









OUT OF GRID COORDINATES

(Latitudes 9°30′N to 10°00′N and Longitudes 3°30′E to 4°00′E)

Coordinates	9° 32′ 55.4″N
	3° 38′ 30.3″E
Coordinates	9° 32′ 51.9″N
	3° 38′ 28.8″E
Coordinates	9° 32′ 56.1″N
	3° 38′ 31.0″E
Coordinates	9° 35′ 42.5″N
	3° 39′ 39.5″E
Coordinates	9° 37′ 37.1″N
	3° 43′ 0.45″E