MINISTRY OF MINES, INDUSTRY AND

TECHNOLOGICAL DEVELOPMENT

TERMS OF REFERENCE OF THE INTERNATIONAL CALL FOR EXPRESSION OF INTEREST (AIAMI)

FOR THE SHORTLISTING OF COMPANIES OR GROUPINGS IN VIEW OF THE GRANTING OF MINING TITLES ON THE RUTILE BLOCK OF AKONOLINGA, CENTRAL REGION, REPUBLIC OF CAMEROON.

I. BACKGROUND

Cameroon has a significant geological potential that can boost economic growth through the development of the mining sector. The country also has other mineral substances of iron, bauxite, diamond, rutile, limestone and nickel. But with all this geological wealth, the mining sector has never really played a major role in the development of the country, and has remained on the margins of the economy. Today, non-industrial mining, which is the main form of mineral production, is an important livelihood for communities living in regions where there is abundant wealth in terms of natural resources including gold and precious stones, but its informal nature hampers the sub-sector's contribution to growth.

At the legislative and regulatory level, the mining sector, with the support of the World Bank, has undergone some reforms, the most significant of which have come about at the same time as the increase in 2001 of commodity prices; these reforms whetted the interest of investors and attracted major players of the sector to Cameroon. The country started issuing exploration permits (more than 100 are still valid). However, only two mining permits have been issued so far: the first in 2003 for the mining of nickel-cobalt by Geovic (mining activities still to be launched); and the second in 2010 for diamond mining by the Korean firm C & K Mining.

In 2010, a revised Mining Code was promulgated, amending some Articles of the 2001 Mining Code. Since this amendment, a number of major projects have been the subject of advanced exploration works, including the Mbalam Iron Ore Project (Cam Iron), and the Adamawa bauxite mining project by Cameroon Alumina. Reform efforts in the mining sector continued in 2016 with the adoption of a new mining code which, among other innovations, institutionalized tenders for the granting of mining titles on sites containing deposits previously highlighted. . This provision applies to a number of occurrences of mineralization already highlighted, some of which were the subject of pre-feasibility studies at the time.

In general, the mining sector is yet to take off, and Cameroon is currently at a turning point in the development of its mining sector.

2. PURPOSE OF THE CONSULTATION

Through these terms of reference, the Government of the Republic of Cameroon

intends to launch an invitation to tender for the rapid mining of the rutile deposit of the Akonolinga area, Nyong and Mfoumou Division in the Central Region,in compliance with the provisions of Article 43 paragraphs 7 and 8 of Law N0. 2016/017 of 14 December 2016 on the mining code.

3. TECHNICAL PRESENTATION OF THE PROJECT

3.1. Overview ofCameroon geology and mineral potential

Cameroon can be divided into three major geo-tectonic units: the Ntem Complex, the vast Central African Pan-African range which contains numerous granitoid intrusions, and the limited Phanerozoic cover units.

The Ntem Complex is made up of Precambrian rocks that stretch out in the south of the country and correspond to the northern edge of the Congo craton. It consists of the Ntem unit at the core and the Nyong unit at the west end. The Ntem unit is dominated by Archaean magmatic rocks (2.8-2.9 Ga) of Charnockitic and non-charnockiticTTG composition that contain large xenoliths of supracrustal rocks, interpreted as remnants of greenstone belts and dated about 3.1 Ga. The TTGs are cut by a sequence of K-rich young granitoids placed between 2.7 and 2.5 Ga (Tchameni et al., 2000, Shang et al., 2004).

The Nyong unit consists mainly of meta-sediments and Paleoproterozoicmetavolcanites affected by a metamorphism of granulite front and intersected by syn - to late - tectonic granitoids dated between 2.1 and 2.05 Ga. It probably represents the southern extension of the granulitic rocks that occurs in Septa in the granitoids of the Adamawa region (Toteu et al., 2001, 2004).

The pan-African range extends immediately to the north of the Ntem complex; it is of predominant Neoproterozoic (Pan-African) age and comprises three tectonic units separated by major shear zones, the Tcholliré-Banyo shear zone (TBSZ) which is SW-NE-oriented and the Sanaga shear zone. From the South to the North, there are: (i) the Yaoundé unit which outcropsthe south of the Sanaga Fault and consists of metasedimentaryschists and gneisses, orthogneiss and ultramafic rocks metamorphosed in green granulite front schists. ii) the Adamawa unit which outcrops between the Sanaga Fault and the Tcholliré-Banyo Fault. It consists mainly of pan-africangranitoids containing metavolcano-sedimentary and metavolcanic formations in septa from metamorphosed palaeoproterozoicmesoage to pan-african age in amphibolite fronts with granulite, Neoproterozoicmetavolcanites and Neolithic schists; and (iii) the West Cameroon unit which outcrops North of the Tcholliré-Banyo fault (Toteu et al., 2004) and extends to eastern Nigeria. It includes neoproterozoicschists and gneisses of volcanic-sedimentary and volcanic origin of medium to strong degree of metamorphism and Pan-African pre-syn-to late-tectonic granitoids set up between 660 and 570 Ma. At the regional level, this tectonic unit is also intersected by alkaline post-tectonic granitoids dated 540 Ma and tertiary ring complexes. It is also unconformably covered by numerous Paleozoic non-metamorphic volcano-sedimentary basins (Mangbai type).
The Phanerozoic cover includes minorsedimentary and volcanic rocks of the Palaeozoic (lower level), Cretaceous sandstones, and Continental Cenozoicschists and volcanics of the CVL (Cameroon Volcanic Line) which is a Y-shaped range, of 1500 km of length comprising recent tertiary (alkaline) volcanoes, such as Mt. Cameroon

and high level contemporary intrusions.

In terms of mineral potential, Cameroon is today a producer of energy substances (oil and gas), metalliferous substances (gold) useful substances (limestone, clay) and diamonds. The country still has many mineral resources that are still underdeveloped, namely bauxite and iron and a high potential of tin, cobalt, nickel and uranium. Generally, gold and diamonds are produced at the small scale level in the east of the country, along the border with the Central African Republic (CAR) but also in the Center-North.

The lithological characteristics, the structural evolution and the geotectonic features of Cameroon highlight its mineral potential as underlined by the ongoing exploration activities. The Archean and Paleoproterozoic sequences of South Cameroon are rich in iron and possibly in gold; the Neoproterozoic / pan-African belts contain various deposits, particularly Co-enriched mafic and ultramafic deposits, and granitoids that control the location of rare and valuable metals (Sn-W-REE & UA (?)), and uranium in addition to supergene deposits and non-metallic minerals such as rutile and nepheline; as for the Cenozoic sequences, they contain major lateritic deposits of bauxite.

3.2. General Presentation

3.2.1. Localisation and geographical data

The rutile area of Akonolinga is located in the Central Region, Nyongand MfoumouDivision, the town and administrative centerof which is Akonolinga(Photo 1). Specifically, it is located about 125 km at the east of the capital Yaounde. From Yaoundé, the paved national road n ° 10 is in very good condition right to Ayos. About120 km away, a short asphalt road leads to Akonolinga, 10 km drive at the southeast. This city is located on the north side of the Nyong River.

From Akonolinga, the flats of rivers Yo, Djaa and Mfoumou can be reached; Forthe Yo and Djaa, one should cross the Nyong River on a concrete bridge, and drive southward for a few hundred meters to the meet point with the narrow P-22 secondary road that follows river Nyong towards the South, and leads to the Yo and Djaa rivers where the rutile deposits are found.

The approximate coordinates of the area's landmark are:

- latitude: 3 ° 42'N
- longitude: 12 ° 10'E
- altitude: 650 m

The climate is of equatorial type, with two rainy seasons and two dry seasons consisting of a small dry season from December to February, interspersed with some heavy storms, and a long rainy season the rest of the year, with a decrease in precipitation in July and early August. The heaviest rains usually fall in September / October and April / May.

Atthe morphological level, the Akonolinga region corresponds to a plateau with little relief and thalwegs that are heavily filled, often marshy, and almost continuously

flooded during the rainy season, which is particularly the case for the Yo and the Djaa.

With regard to vegetation, the entire region is covered by a secondary forest. At the edge of the slopes there are numerous plantations. The flats are occupied by a moderately dense forest, with some grassy expanses.

3.2.2. Geology of the study area

Geologically and gitologically, the area of this study is included in the crystalline basement of south-west Cameroon, which consists of two major groups: the Ntem group and the Yaoundé group. It is in the most recent of the two, the Yaoundé group probably carted by the first, that the main rutile placersare found. These are more particularly associated to a set of micaschists with two micas, grenat, kyanite and rutile, with inter-bedded quartzite. These fronts meet, in the N.NE of the project in the series of Yaoundé, but also in the series of the Nisus mountains, which form a narrow north-south band at the west of the area concerned.

All the known and formerly mined deposits are alluvial deposits, and their description shows no gitologicoriginality.

3.2.3. Historical background of the work

Rutile has been known in Cameroon since the beginning of the century, but it was only mined between 1935 and 1955. The total rutile production recorded was about 15,000 tons, with a maximum of 3,320 tons in 1944; mining remained essentially artisanal.

In the project area, the most important mining areas were grouped together:

- East of Yaounde, in the Akonolinga region, with 30% of the total production;
- West of Yaoundé, Eseka and Sanaga Maritime region, with about 8% of the total production.

Cameroon cruderutile was appreciated on the market for its quality (95 to 98% of TiO2). It was operated only to the grain size equal to or higher than 1 millimetre. Mining grades ranged from 10 to 20 kg / m3 in place, and sometimes more.

In 1950, the Department of Mines and the French Overseas Mining Office (BUMIFOM) created the Rutile Union. This organization launched a prospection program in an area found in the west of Yaoundé, where small-scale mining production was very limited. This work made it possible to delineate fifteen small deposits with small tonnages. A reorganization project was initiated to bring together the various small producers and plan the mining activity. In 1953, the union not being effective, its dissolution was pronounced. Small producers retreated a few years later and mining activities ceased.

- From 1978 to 1980

In 1978, the Bureau of Geological and Mining Research (BRGM) of France decided, despite the previous mishaps, to invest in Cameroon rutile. That year,

B.R.G.M. with their own financing, prospected the alluvials of the lower Nyong valley, at the mouth of the river in the coastal sedimentary basin of Douala. The results of this surveygave little hope (report 78 RDM 037 AF).

The following year, after a comprehensive metallogenic compilation, a strategic prospecting survey was launched in other sectors. Previous surveys of BUMIFOM and previous alluvial rutile mining sites were reviewed and it was found that some tributaries at the south of the Nyong River were rich in rutile and could have flats 200-300 m wide; this was the case of two tributaries of rivers Djaa and Yo in which two old mining permits produced 495 tons and 75 tons of rutile respectively.

As a result of this study, four areas (Edea-Kribi, Campo, Otélé and Akonolinga) were selected for a field audit focused on sinking wells in alluvium and eluvium.

The minimum economic objective was the delineation of a resource of 5 million tons of mineralized sand at an average grade of 1% rutile, within a radius of 50 km around a processing unit. As a result of this prospecting survey, only two areas were selected: Otélé and Akonolinga, where concentrates containing an average of more than 40% rutile were found.

- From 1980 to1985

The work was carried out by B.R.G.M. within the framework of the "Mining Research and Prospection in South-West Cameroon Project(South-East Mining Project)" financed by:

- the Government of the Republic of Cameroon;
- the Aid and Cooperation Fund (FAC) of France;
- the European Development Fund (EDF)

1980 - Strategic prospecting withthe Banka 4 survey "(Report 81 RDM 047 AF)

Works carried out:
The flats of the Yo and Djaa were each testedby two lines 5 to 7 km apart. The Banka surveys are spanned from 30 to 100 m (30 surveys totalling 112.30 m) on each line. An auger sampling was carried out to test the eluvium on both sides of the flat.

Sampling was achieved in metric passes in the sandy levels. About twenty centimetres of substratum were collected with the last sample.

Results obtained:

- ✓ The YoFlat:

On line A, the placer consists of 0 to 2 m of clay coverage, surmounting 1 to 2 m of more or less mineralized sand, with some basic gravels. On line B, the bed rock draws a channel with asymmetrical section. Under a clay covering of 0 to 2.5 m, is a sandy level, with little or no clay, of 1 to 4 m of power.

The dense fraction greater than 1 mm consists almost entirely of kyanite (80 to 85% on average). The dense fraction of less than 1 mm has an average of 47% rutile and 40% kyanite. The remainder consists mainly of staurolite, garnet, ilmenite, pyrite and zircon.

The rutile contents vary between a few kilograms and 42 kg / m3 of abundant random sand. The contents of the kyanite range from a few kilograms to over 400 kg / m3, with a distribution comparable to that of rutile, i.e significant levels in the middle part of the flat and above the bed rock.

By extrapolating the results obtained on two lines over 10 km of total development of the Yo, the potentials of the Yoflat could be:

- 70,000 tons of rutile at an average grade of about 15-16 kg / m3 of blooming loose sand;
- 150 000 tons of Kyanite greater than 1 mm, with contents ranging from 28 to 34 kg / m3 of blooming loose sand.

✓ **The DjaaFlat**

The Djaa alluvium has a discontinuous clay covering of 0 to 2.8 m of power, overcoming a level of 1.5 to 4 m of more or less mineralized sand. This sandy formation, fine at the top, becomes increasingly coarse down. The dense fraction which is greater than 1 mm consists almost entirely of kyanite(80 to 90%). The dense fraction of less than 1 mm averages 52% rutile and 31% kyanite; the accessory minerals are: staurolite, garnet, and ilmenite.

The rutile contents vary between a few kilograms and 41 kg / m3 of blooming loose sand. The highest grades are found in the middle part of the flat, and at the base of the sandy level, near the bed rock. The contents of kyanitevary between a few kilograms and 104 kg / m3.

By extrapolating the results obtained, the potentials of the Djaa could be:
- 150 000 tons of rutile at an average grade of 17-18 kg / m3 of blooming loose sand;
- 150,000 tons of kyanite at grades ranging from 13 to 39 kg / m3 of blooming loose sand
- Multiple.

1983 - Preliminary Recognition of the Yo and Djaa Flats (Report 83 RDM 036 AF)

Workscarried out:

The Yo and Djaa flats were subsequently recognized through the Banka 4 "survey, with a cross-sectional profile on every 1000 m, including those of the 1980 survey, and a survey every 50 m on these profiles.Anumber of surveys was also conducted downstream of the flat of their main tributaries, i.e about 139 surveystotaling 390.45 m.

Sampling, surveying and processing methods are comparable to those of the

1980survey.

DEPOSIT'S RESERVES APPROACH

➢ Flats Geometry

The Djaa: the Djaa flat has been studied, over a length of 12.8 km, by 10 Banka survey profiles. Its width varies on its recognized part between 130 and 850 m (average 390 m). The thickness of the alluvium does not exceed 5.70 m.

The Yo: the Yo flat has been studied by 7 survey profiles, over a length of 8,120 km. Its width varies between 230 and 650 m in its recognized part. The thickness of the alluvium varies between 2 and 4 m with peaks at 8 meters.

➢ Geometry of the mineralized body

The Djaa: The width deemed "useful" (concentration greater than 20 kg / m3) of this flat oscillates between 60 and 400 m (average 170 m). The average thickness of the "mineralized" alluvium thus defined is 3.16 m, for a sterile clay covering of 1.06 m (0 to 2.40 m).

The tributaries of the Djaa:

- on the three upstream tributaries of the Djaa, only the profile performed on the Mbeteme flat is of interest, with a "useful" width of 190 m and a "mineralized" thickness of 2.02 m under a null overlap;
- on the two tributaries of the centre of the Djaa, only the Toumbouflat is of interest, with a "useful" width of 45 m and a "mineralized" thickness of 0.85 m, under 0.25 m of sterile coverage.
- theNsoko flat has a "useful" width of 150 m, an ore thickness of 2.50 m under 0.55 m of coverage.

The Yo: The "useful" width of this flat varies between 50 and 150 m (90 m on average). The average thickness of "mineralised" alluvium is 3.50 m under a sterile coverage of 0.75 m average (0 to 1.80 m).

The tributaries of the Yo: On the two tributaries of the left bank downstream, only the Bilondo profile is of interest with 80 m of "useful" flat and a "mineralized" thickness of 1.80 m under a 0.40 m coverageaverage.

➢ Measured contents

As a general rule, flat parts with a concentrate content of less than 20 kg / m3 are not taken into account.

o **Flats of the Djaa and its tributaries**

According to the profiles, the rutile contents vary from 12.650 kg / m3 TVF[1]to 19.900 kg / m3 TVF for the Djaflat.

- Mbeteme profile: 19,600 kg / m3 TVF (*)
- Toumbou profile: 17,500

[1]TVF : Tout-Venant Foisonné (Borrowing)

- Nsoko profile: 17,900

The contents of the kyanite vary much more strongly, from 7.6 kg / m3 TVF to 49.650 kg / m3 TVF in the Djaa alluvium.

o. Flats of the Yo and its tributaries

Rutile contents vary in the Yo alluvial deposits and in rows of 15.8 kg / m3. It is 19.7 kg / m3 for the Bilondo.

The concentrations of kyanite vary (except profiles A and B of the 1980 survey) from 15.9 kg / m3 to 45.2 kg / m3, and is 4.550 kg / mi in the Bilondoalluvium (only one profile).

- Estimated Cubage

  Reserves in rutile and kyanite were evaluated by the method of zones of influence attributed to each line. The volume is obtained by multiplying the half distances between lines with the area of the mineralised body at the level of the line.
  The content used is that in T.V.F. The reserves are therefore expressed with a security equal to the expansion coefficient (see below).

The Djaaalluvial deposits and tributaries: The rutile reserves are estimated at 132,800 t with an overall content of 20.3 kg / m3 (i.e 107,500 t for the Djaa alluviums). The Kyanite reserves may be 136 000 t (fractions of less than or higher than 1 mm) with an average content of 25 kg / m3 for the Djaa flat and 7.4 kg / m3 for its tributaries.

The Yoalluvial deposits and tributaries: The rutile reserves are estimated at 50,700 t at an average of 22 kg / m3 (45,500 t for the Yo alluvium). The Kyanite reserves would be 56 000 t with an overall content of 34 kg / m3 for theYo flat, and marginal (5.2 kg / m3) for its tributary, the Bilondo.

The AkonolingaArea: The rutile potential of this area is estimated at more than 500,000 tons.

MINING APPROACH

- The materials

The coverage is made of clay, supposedly sterile (it has not been sampled), and of very variable power. There appears not to be significant clay lenses within the mineral sands. Only surveyn°7 of profile 3070 of the Yo seems to have found clay minerals in contact with the bed rock.

The sandy ore can be, very schematically, split into three fronts:

1. a higher level of medium to coarse sand (<1 mm), progressively clayey, and widespread, especially in the middle part of the deposit;
2. a lower level of fine-to-medium sand (<1 mm), more or less clayey, with some angular quartz gravels of 0.5 to 5 cm (less than 10-20%). It is located mainly in

the overcrowded zones of the substratum (channels) and seems to be the most mineralized;
3. fine sands become locally clayey, especially in the lateral parts of the flat.

The substratum is composed of muscovite schists, which are very much altered.

From 1984 to 1985

Further researchworks were carried out on concentrates collected in the Djaa and Yo flats with the aim to:

- prepare a preliminary technical-economic study to better specify the economic potential;
- value the data obtained in previous surveys with additional sampling;
- improve the treatment process and increase the percentage of gravimetric recovery of the smallest particles.

Nine (9) pits were dug during this season in the field; the samples collected were subjected to two processing phases:

- Laboratory tests with granulochemical and mineralogical assays, Humphrey
  table test, concentration control by washing;
- Pilot tests on 14 tons of ore to control the washing and gravimetric concentration problems of fine particles.

These laboratory tests showed 7% losses of TiO2. The table tests showed a recovery of:

- fraction 100 -500 µ = 72 to 85% of TiO2;
- fraction 32 - 100 µ = 74% TiO 2;
- Fraction <32 µ = considered unrecoverable.

The average recovery is estimated at 65% TiO2. The crude ore content is about 2.1% TiO2 (dry product). This value was comparable to the values obtained on the nine (9) samples tested in the laboratory.

From 1988 to 1991

On 28 February, 1988 the Ministry of Mines, Water and Energy (MINMEE) and the BRGM formed the Akonolinga Rutile Study Company (SERAK) with a capital of CFAF 460 million held by a wholly-owned subsidiary of BRGM (SEREM) and the State of Cameroon in respective proportions of 52% and 48%.

In the same year, SERAK undertook a pre-feasibility study on the Akonolinga rutile deposits. Pilot tests were carried out on four bulk samples taken from rivers Djaa and Yo; namely:

BS No. 1: 70 tons; BS No 3: 163 tons
BS No. 2: 106 tons; BS No. 4: 227 tons.

This study was mainly carried out in order to define the processing scheme for this

type of ore and also, for a first estimate of the investment required for the construction of a processing unit with a capacity of 3 000 tons of rutile concentrate per year. This pilot plant produced a pre-concentrate at a grade of 60-65% TiO2; this pre-concentrate was refined by high intensity magnetic separation and electrostatic separation. The resulting concentrates were sent to different consumers to test the market.

In 1989, the second phase of the pre-feasibility study also included a geological and economic study.

The Rutiliferous alluvial deposits of the Djaa and Yo rivers were studied by 636 holes drilled with the Banka drill. Drilling was carried out on sections at an interval of 500 m and along sections at a spacing of 50 m. A "cross" with variable spacing was established on each section about 1/3 fromthe mouth of the river. These crosses made it possible to establish variograms necessary for the geo-statistical analysis of the results.

A plan on a scale of 1/5000 scale was prepared. In both flats, 34 pits were dug. Each pit had a diameter of 1.25 m. They were dug on sections at a spacing of 1,000 m, in order to obtain a large volume of material and to control the contents obtained in the boreholes.

Since the rutile is not the only mineral containing TiO2, 34 pit samples were used to determine the origin and proportion of TiO2 contained in other minerals. Following this study, it was concluded that about 23% (Yo River) to 28% (Djaa River) of TiO2 comes from rutile needles contained in inclusions in other minerals.
In order to make an estimate of the reserves, the flats were cut into elementary panels. The average value of each panel was obtained from all surveys and holes drilled in this area. This method made it possible to evaluate the geological resources of each flat. Statistical analysis confirmed this assessment, with the introduction of a doubt factor related to the method and type of sampling. The results obtained by the two methods were presented as follows:

Flat	Geostatistic Method		Conventional Method
Djaa	290 226 tons (± 49 919 tons)		300 366 tons
Yo	242 335 tons (± 37 800 tons)		243 884 tons
TOTAL	**532 561 tons**	**544 250 tons**	**544 250 tons**

Taking into account the 65% recovery rate obtained in the 1988 pilot tests,mining operations would produce 195,000 tons and 158,000 tons of TiO2 from the Djaa and Yo rivers. The total tonnage is estimated at 353,000 tons of TiO2, which corresponds to 362,000 tons of rutile with97.55% TiO2.

In 1989, it was concluded that the Djaa and Yo flats were not the only rutile-rich areas in the region; more rutile alluvia from other rivers such as the Mfoumou could be additional resources for the future.

In 1990, SERAK conducted a pilot study for the optimization of gravimetric circuits. The test consisted of using spirals for the +40 µ - 1000 µ fraction of the composite samples collected from the Djaa and Yo flats.

The results obtained from this study confirmed those obtained during the second phase.

In 1991, a second study to improve the gravimetric concentration was performed on concentrates obtained from spirals (40 µ to 1 mm) from the pilot plant. The tests carried out with rotor electrostatic separator did not allow the separation between the rutile and the kyanite. The elimination of quartz has, however, remained very effective but with a result lower than that of the magnetic separation.

In the same year, the BRGM drafted a preliminary feasibility study for amining project of 30,000 tons per year.

During this preliminary feasibility study, the meanders of the Yo (8 km) and the Djaa (12 km) were systematically explored using the Banka sounding machine on a 500 m by 50 m grid, for a total of 42 profiles and 405 drill holes plus a number of pits.

The respective widths of rivers Yo and Djaaare 400 m and 300 m. In both cases, the average thickness of the alluvium is about 3 m, of which 0.65 m consists of sterile clay. The specific dry density of the ore is 1.5.

All drill holes were sampled at an interval of 1 m and analyzed for TiO2. In addition, a composite sample of each borehole was prepared and used to extract its rutile fraction in grain sizes of 40 to 1000 µm using the Clerici liquor.

The reserves were calculated assuming that a specially adapted dredge would be used to extract the ore and that the specific problems encountered in the alluvial survey had been taken into account.
The reserves were thus calculated at 19 928 554 cubic meters with a concentration of 24.62 kg / m3 of rutile (1.64% TiO2), ie 490 612 tons of rutile expressed in rutile TiO2. In the 40 - 1000 µm commercial fraction, the two flats combined contain 384,562 tons of rutile at an ore concentration of 1.65% rutile.

In addition to the Djaa and Yo River Survey, prospecting and reconnaissance drilling was undertaken along the Mfoumou River. The reconnaissance made it possible to delimit the additional resources of 240,084 tons of rutile in theMfoumou flats and 240,000 tons in its tributaries.

During the same period, reconnaissance was conducted on the Sélé and Tédé rivers in the Nanga Eboko region. The survey estimated resources at 723,000 tons of rutile and 174,680 tons of rutile, respectively. To date, the project has a potential of more than 3,000,000 tons of rutile, taking into account the mineralization of the Mfoumou River and its tributaries, the creeks of South Akonolinga and the Tede and Sele rivers located in the Nanga Ebokoarea.

The table below shows the distribution of inferred resources expressed in tonnage of commercial rutile.

MINERAL RESOURCES AND ESTIMATES OF THE MINERAL RESERVE

Calculated Resources	Tons of rutile	% Rutile
Yo	136 000	1.71
Djaa	262 000	1.56
Mvingui	118 000	1.58
Lower Mfoumou	248 000	1.00
TOTAL	**764 000**	**1.35**
Indicated Resources		
South Akonolinga	947 000	0.81
Haut Mfoumou	240 000	1.00
Nanga Eboko	898 000	1.11
TOTAL	**2 085 000**	**0.94**
OVERALL TOTAL	**2 849 000**	**1.05**

The average content of the total resources calculated is 1.05% of rutile. This potential Represents the world's second rutile resource, behind Sierra Leone.

In1993, Consolidated Rutile Limited of Australia (CRL) drafted a marketing report for the SERAK project. Five conclusions were drawn by this Australian producer:

- the Akonolinga project with the additional resources of Nanga Eboko isa major new global resource in titanium;
- An analysis of mining operating costs indicates that, due to their shape and location, Cameroon rutile deposits are economically ranked, immediately behind those of North Stradbroke Island and Sierra Leone;
- in the global titanium market of the world (including ilmenite) there is strong competition among many fields in various countries to be known as new producers in the next cyclical recovery;
- a competitive position in the market should be established by minimizing overall costs and develop effective market strategies for the success of the Akonolinga project;

In August 1993, C. Forristal Mining Consultant of England submitted to the BRGM an audit report on the pre-feasibility study, to determine the optimal capacity of the project, the preferred location for the dry treatment plant, the sequence and operating methods, wet processing, plant design, recovery factors, equipment selection and cost adjustments.

The consulting firm concluded that with measured and indicated resources of 2.85 million tons of rutile exploration potential, the Akonolinga Project (including Nanga Eboko) is a leading world-class rutile producer. Apart from very shallow soil, which limits possibilities of mining methods, there are no outstanding technical characteristics and nothing apparent that could prove fatal to the success of the project.

4. NATURE AND DESCRIPTION OF SERVICES

The services to be implemented include (without exclusion):

- certification of data from previous studies through:

• review of historical data: the various reports available on the exploration of the sector, the techniques used for sample collection and processing, the calculation of grades and reserves, the progress and results of the pilot tests, etc., will be examined and commented. A general opinion will be given on these different works;

• confirmation of existing data to qualify the declared resources: the bidder shall use any method deemed appropriate; however, a minimum of work shall be performed including: two cross-sectional sampling, resampling of these holes and the determination of the concentrate obtained after treatment; a minimum of 50 holes per flat shall be recommended;

- qualification ofdeclared resources

On the basis of the results obtained in the previous phase, the tenderer shall proceed with the tightening of the surveys; a 25-meter spacing is recommended on the transverse lines: a minimum of 480 boreholes for the Yo River Flats and 1200 holes for the Djaa River Flats is recommended. These holes should help to better quantify and qualify resources and reserves.

- The development of a recovery scheme for the substance

As new equipment has been developed for the recovery of gold by wet or dry gravimetry, tests using new equipment and technology shall be required. Desliming parameters and ore classification shall be checked.

- Update of the pre-feasibility study carried out by the BRGM

It is paramount to maximize the recovery and value of TiO2 as well as the cost saving by economy of scale and determine optimal production in order to achieve economies of scale. A production rate of 60,000 to 80,000 tons instead of the 30,000 tons planned by the BRGM could be envisaged. A detailed study of the hydrological conditions of production sites shallequally be carried out, the increase in the production requiring more water to support larger and heavier floating barges of specific design to adapt to the thickness of thin sediment flows.

- Feasibility study taking into account

The points to be considered in this feasibility study shall be those of the applicable laws and regulations, in particular:

• Provisions common to the issue of mining titles for production:
  - the quantified assessment of the size and quality of the ore reserves, according to approved international standards;
  - the determination of the metallurgical ore treatment process;
  - Mining planning supported by a production profile
  - the presentation of a mine construction program, detailing the work, equipment, facilities and supplies required for the commercial production of a deposit or a potential deposit and the estimated costs relating thereto, with the expenses to be made annually;

- a statement describing the kind of infrastructure expected;
- a socio-economic impact notice for the project, particularly on the local populations;
- an environmental and social impact assessment of the validated project;
- the establishment of a plan for the marketing of products including outlets and prices;
- clear and complete financial projections for the period of operation;
- the conclusions and recommendations as to the economic feasibility and the timetable set for the sale of the commercial production taking into account the points referred to above;
- a draft mining convention;
- any other information that the party responsible for the feasibility study would consider necessary to induce all financial or banking institutions to lend the funds needed for the mining of the deposit;
- the mining site closure work plan, the restoration and rehabilitation of the mining operations sites, the schedule for the completion of the work, the evaluation of their costs and the proposal for the financing of the deposit to guarantee the execution of the works , consisting of a bank guarantee, insurance policy and / or payments into an escrow account in sufficient amounts to guarantee the completion, by the holder or by the Administration in charge of Mines, of the closure works , restoration and rehabilitation of the mining sites provided for in the plan, in accordance with the guidelines of the Administration in charge of mines.

• Specific provisions for deposits previously identified by third parties:
- refunding of the updated value of previous studies;
- the share of the State in the capital of the operating company

At the end of this work, the Consultant shall enter into a mining Agreement MINMIDT and shall be automatically granted a mining title.

5. COMPOSITION OF THE CONSULTANT'S TEAM

The consultant shall provide a list of the key personnel he intends to set up for the performance of the services; this list must include at least:

A Geologist, Project Manager:

Qualifications and skills
PhD in Geology or equivalent Diploma;

General professional experience
At least 15 years of experience in geological mapping, especially in Precambrian plutonic and metamorphic soils;
Familiar with modern mapping techniques (GPS, GIS, digital databases) and multidisciplinary data development (field observations, satellite images, radar, airborne geophysics, soil geochemistry...);

Specific professional experience
Technically directed or supervised at least two projects of similar range and purpose;

Good knowledge of the geological peculiarities of the Archaean and Proterozoic Paleo and their potential in mineral resources;
Familiar with the African continent in all its aspects (geology, soil and vegetation, climate, logistics, culture and customs, administration);

A qualified person
Defined in accordance with National Instrument 43-101 or any other recognized equivalent standard taking into account, in particular, the school curriculum, affiliation to a professional association, experience in mining audits, etc. from the applicant;

A geologist
At least 8 years of experience, post-master's degree or doctorate in regional metallogenic studies; and having a good knowledge of the metallogeny of Precambrian granitic and metamorphic soils.

A specialist in mineral processing
At least 10 years of post-master's or doctoral experience in the organization of geological exploration surveys and in the quality control of sampling preparation, laboratory analysis techniques and elementary analysis interpretation.

6. DELIVRABLES

- Initial report detailing the work plan; this report shall be submitted two weeks after notification of the Order of Service

- Progress report: the tenderer shall submit progress reports on a quarterly basis, with:
  - a summary synthesis of the work progress;
  - the data relating to the technical, human and logistical progress of the work;
  - possible measures to be recommended for the smooth running of future works.

- Final reports: feasibility study

7. COMPLETION TIME

The deadline for completing the work shall bethe same as for a research permit, ie three (03) years. It shall be non-renewable.

Appendix:

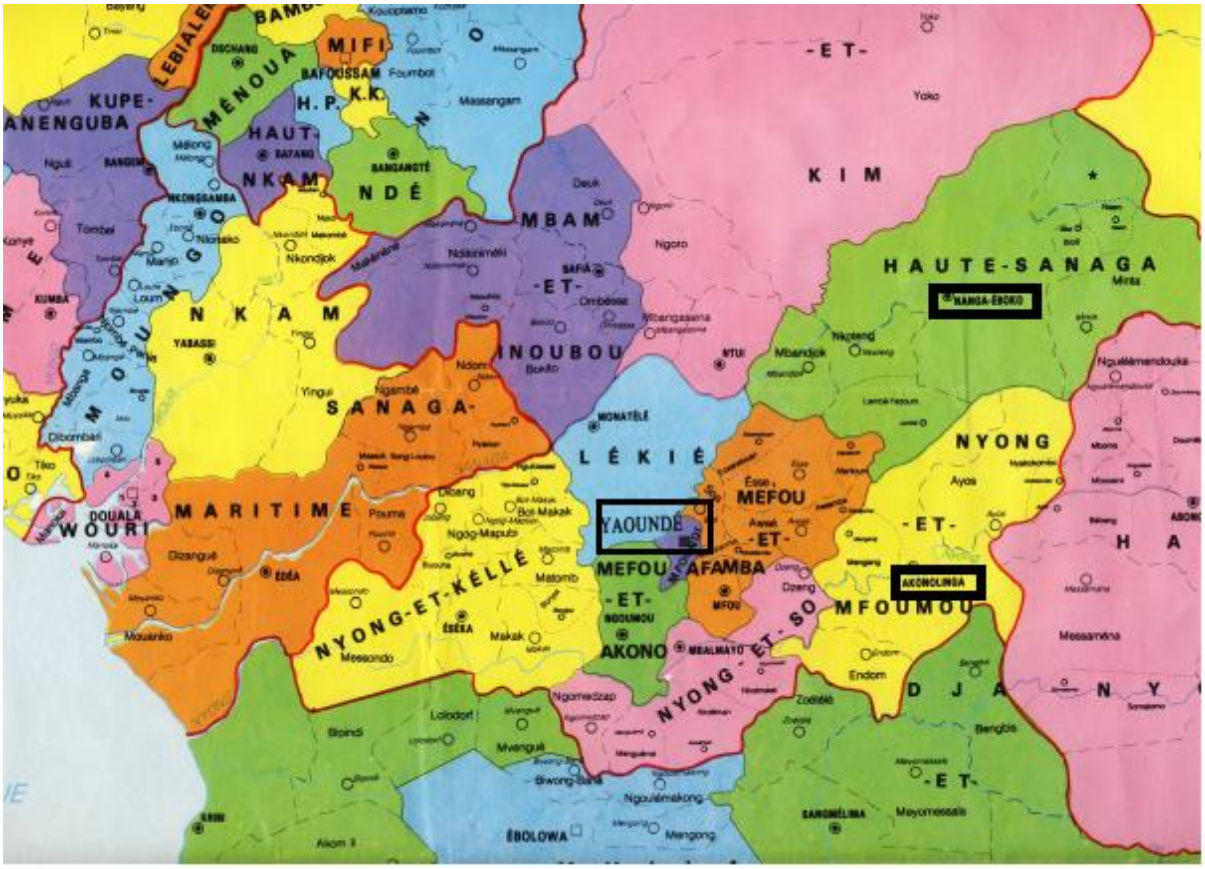

photo1: Partial Administrative Map of Cameroon highlighting Rutile Areas

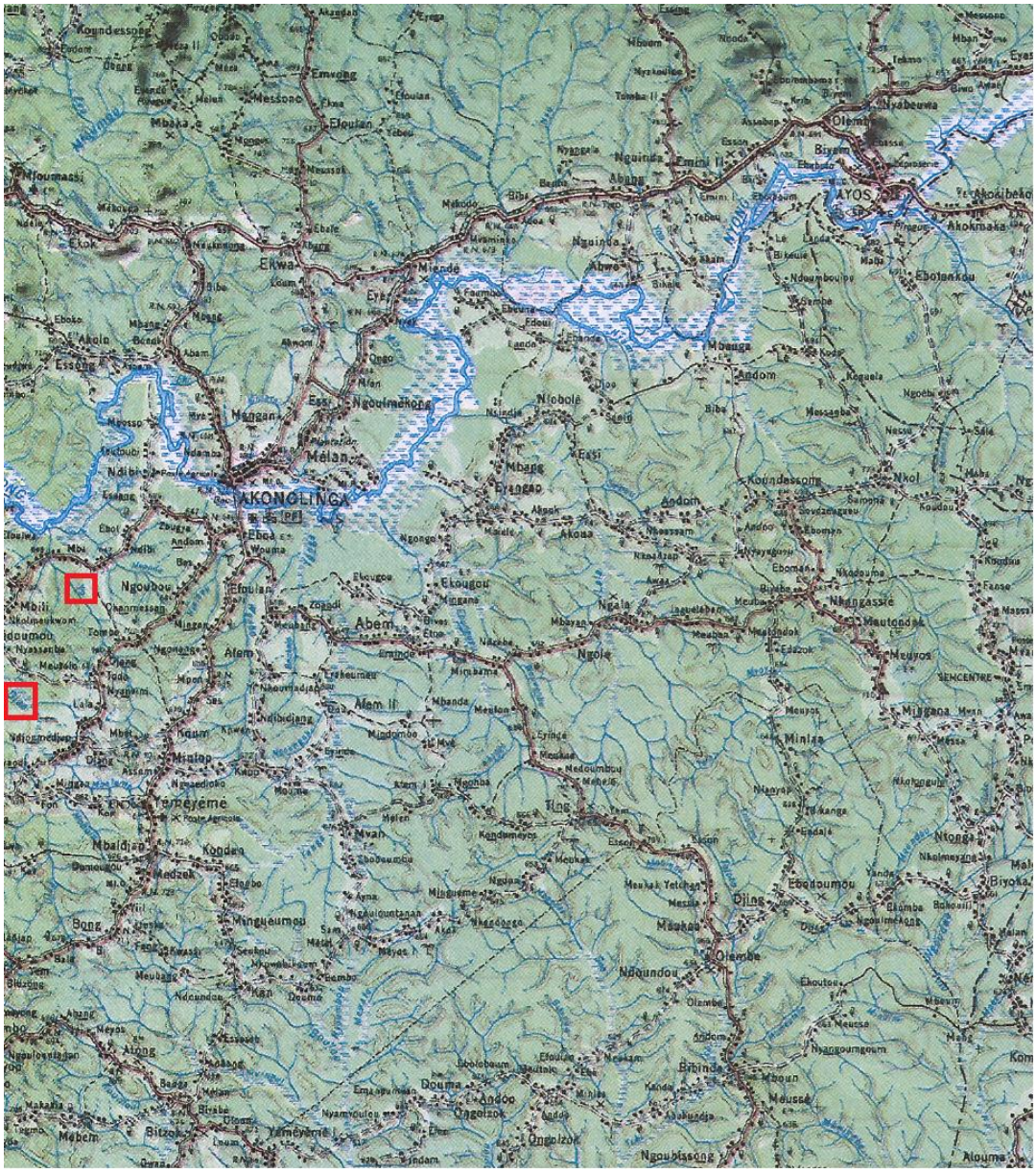

photo2: The situation of rivers Djaa and Yoin the Akonolinga area (excerpt from 1: 200,000 map)

BIBLIOGRAPHY

LARRIBE D.: Alluvial Prospection of the Lower Nyong valley (Cameroon). Search for Mineral Concentrations of Rutile and Zircon; BRGM Report 78 RDM 037 AF; 1978

LARRIBE D.,: SAVOYE J. Study and prospecting in South-West Cameroon, Second Phase, Survey 1979, Rutile Prospection; Rap. BRGM 79 RDM 061 AF; 1980

SAPINART J.: ProspectingResults for South West Cameroon. Survey 1981. Rutile Prospection of the Yaoundé-AkonolingaArea; Rap. BRGM 81 RDM 057 AF; 1981.

LARRIBE D.: Results of Mineral Prospecting in South-West Cameroon. 1980 Survey. Prospecting for the rutile zones of Obélé and Akonolinga; Rap. BRGM 81 RDM 047 AF; 1981.

SAPINART J.: Results of Mineral Exploration inSouthwest Cameroon, 1982- Survey 1983. Volume D. Rutile Proportion in the Yaoundé-AkonolingaArea. Semi-systematic Study of the Yo and Djaa Flats; Rap. BRGM 83 RDM 036 AF; 1983.

BAJON P.H., FABY J.P., VERDIER P., DUBOIS E.: Study of the Treatment of Two Batches of Rutile Sand in Cameroon (Gravimetric, Magnetic, Electro-static Separations); Rap. BRGM 83 RDM 036 AF; 1983.

NOEL Y.: Study and Prospecting in Southwest Cameroon. Survey 1984-1985. Volume B. The alluvial rutile of the Yo and Djaa; Rap. BRGM 85 CMR 013; 1985.

FABY J.P. and NGWA J.: Gravimetric processing Pilot of the Akonolingarutile (Cameroon); Description and result of the operation (May-August 1988); BRGM 88 CRM 200 MIN, 1988.

BERROUIN J.P. SERAK: AkonolingaRutile (Cameroon), 1st phase - Trafficking Pilot Test Rap. BRGM 88 CRM 220; 1989

LOISLARD M., HERROUIN J.P. and NGWA J.: Certification of Alluvial Rutile Reserves inAkonolinga (Cameroon); Šerák; BRGM 89 CMR 161; 1989

LOISLARD M., HERROUIN J.P. and NGWA J.: TiO2 Content Records Acquired on Banka soundings, Tightening grid, Yo River; Annex 4; Šerák; BRGM 89 CMR 161; 1989

LOISLARD M., HERROUIN J.P. and NGWA J.: TiO2 Content Records on Banka Soundings, Tightening grid, Djaa River; Annex 3; Šerák; BRGM 89 CMR 161; 1989

LOISLARD M., HERROUIN J.P. and NGWA J.: Systematic Prospecting of the Djaa (Banka surveys); Annex 2; Šerák; BRGM 89 CMR 161; 1989

LOISLARD M., HERROUIN J.P. and NGWA J. Systematic Prospecting of the Yo (Banka surveys); Annex 1; Šerák; BRGM 89 CMR 161; 1989

LOISLARD M., HERROUIN J.P., and NGWA J.: Well sections and TiO2 grades, Djaa River (Appendix 5), Yo River (Appendix 6); Šerák; BRGM 89 CMR 161; 1989

LOISLARD M., HERROUIN J.P. and NGWA J.: Weighted Average of TiO2 Content Per Profile; Djaa River (Appendix 7), Yo River (Appendix 8); Šerák; BRGM 89 CMR 161; 1989

LOISLARD M., HERROUIN J.P. and NGWA J.: Granulometric Analysis Sheets; Djaa River (Annex 9), Yo River (Appendix 10); Šerák; BRGM 89 CMR 161; 1989

LOISLARD M., HERROUIN J.P. and NGWA J.: Topography - Survey; Djaa River and Yo River (Appendix 11), Topography Coordinate of Polygonal Rivers, Djaa and Yo Rivers (Appendix 12); Šerák; BRGM 89 CMR 161; 1989

LOISLARD M., HERROUIN J.P. and NGWA J.: Tube Sampling, DensimetricAnalyzes and Expansion Calculation; Djaa River (Appendix 13), Yo River (Appendix 14); Šerák; BRGM 89 CMR 161; 1989

LAFOY C.: Mineralogical Study of Control Wells; Šerák; BRGM 89 CMR 161; 1989

LOISLARD M., HERROUIN J.P. and NGWA J.: Geostatistical Estimation of Existing Reserves, Akonolinga Rutile Deposit (Cameroon), (Appendix 16); Šerák; BRGM 89 CMR 161; 1989

COUETDIC J.M.: Preliminary Feasibility Study, Project of 30,000 tons per year; SERAK-BRGM; Volume 2- Appendix; Rap. BRGM R 32,557; 1991.

COUETDIC J.M.: Summary of the 1991 Feasibility Study, Akonolinga Rutile, Preliminary Feasibility of a project of 30,000 tons per year, BRGM R32 557, 1991.

Joint venture SERAK-CRL Akonolinga: Mfoumou River, Survey 1991/92; Cross sections; Volume 2c; Rap. BRGM R 36134; 1992.

SERAK-CRL Joint Venture Akonolinga: Regional Prospecting, Survey 1991/92; South Akonolinga; Volume 3; Rap. BRGM R 36134; 1992.

SERAK-CRL Joint Venture Akonolinga: Regional Prospecting, Survey 1991/92; Basin of Mfoumou; Volume 4; Rap. BRGM R 36134; 1992.

FABY J.P., GRES M. and JEZEQUEL P. (SGN / GEO). : Refining of Akonolinga gravimetric concentrates (Cameroon); Test report; BRGM DAM / MIN / 91 No. 308; 1991.

BarretP.J.: A report prepared for the Akonolinga joint venture by Consolidated Rutile Limited,
12 pages, 1993.

Forristal C.: BRGM Rutile Cameroon, Review of the Akonolinga Project;

Ciaran Forristal Mining Consultant, United Kingdom; 1993.