



Alternative Minerals– Potential for Guyana (Part 1) 可替代矿产品-圭亚那的潜力股 (1)

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Regional Geology–Brief 本地区地质状况–简述

- ▶ Guyana lies within the Amazonian Craton, which forms the northern part of the South American Continent. (Brazil, Bolivia, French Guiana, Guyana, Suriname and Venezuela). The Amazonian Craton is subdivided into two geographic shields, the Guiana Shield in the north (in which Guyana is situated) and the Central Brazil Shield in the south.
- ▶ 圭亚那位于形成南美洲大陆北部的亚马逊地盾内。（巴西、玻利维亚、法属圭亚那、苏里南和委内瑞拉）亚马逊地盾又细分成两个地区性的地盾，即圭亚那所处的北部圭亚那地盾和南部的中巴西地盾。
- ▶ The Amazonian Craton shows striking similarities to the West African Shield. Both connected and formed part of a larger continent, prior to the opening of the Atlantic during the Mesozoic period.
- ▶ 亚马逊地盾和西部非洲地盾有惊人的相似之处。早在中生代时期，大西洋形成以前，两个地盾是相连的，而且成为一个更大的大陆的一部分。
- ▶ Guyana is largely covered by two terrains
- ▶ 圭亚那大致被两种地形所覆盖
 - A granulitic and gneissic terrain 片麻状地形
 - A granite – green stone terrain 花岗岩绿石地形



KAOLIN 高岭土



KAOLINITE FROM LINDEN, GUYANA
圭亚那林登高岭土矿



KAOLIN USES AND FACTS

高岭土的用途

- ▶ Kaolin is used in ceramics; it is generally the main component in porcelain
高岭土用于制作陶瓷制品。瓷器的主要成分就是高岭土
- ▶ as a light diffusing material in white incandescent light bulbs
用于白炽灯灯泡制作中的光扩散材料
- ▶ in cosmetics & for facial masks or soap
用于制作化妆品、面膜和肥皂
- ▶ for its semi-reinforcing properties in rubber
由于其半补强特性，而被用于制作橡胶
- ▶ in organic farming, as a spray applied to crops to deter insect damage, and in the case of apples, to prevent sun scald 用于有机农业生产。可作为喷雾剂，施用于庄稼，防止虫害的侵袭。施用于苹果树，可防日灼
- ▶ as whitewash in traditional stone masonry homes
可作为白色涂料，施用于传统的砖石结构住宅
- ▶ as an indicator in radiological dating since kaolinite can contain very small traces of uranium and thorium
由于高岭土自身含有微量放射性元素铀和钍，故可用作放射定年的指示器
- ▶ to soothe an upset stomach 可缓解胃部不适
- ▶ as adsorbents in water and wastewater treatment 可用作水分和污水处理中的吸附剂



USES OF KAOLIN 高岭土 的用途



FINE CHINA 精致瓷器

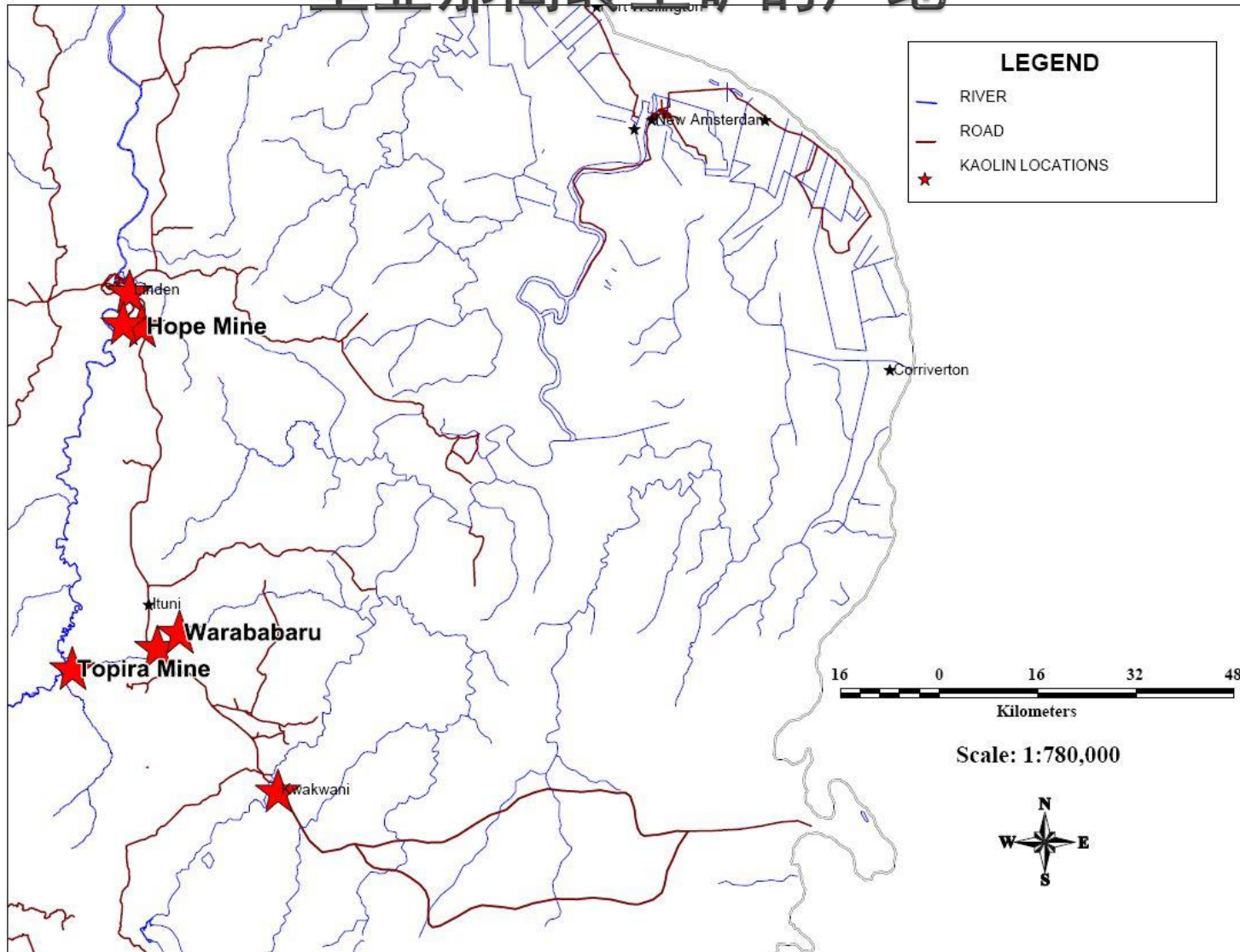


FACIAL MASKS 面膜



KAOLIN OCCURRENCES IN GUYANA

圭亚那高岭土矿的产地





NICKEL 镍



NICKELINE (NICKEL ORE)

镍矿



NICKEL USES AND FACTS

镍的用途

- ▶ About 65% of the nickel which is produced is used to manufacture stainless steels.
- ▶ 65%出产的镍用于制造不锈钢产品
- ▶ Another 20% is used in other steel and non-ferrous alloys – often for highly specialized industrial, aerospace and military applications.
- ▶ 其他20%用于生产钢和有色合金-多出现在高度专业化的产业，例如：航天和军事应用。
- ▶ About 9% is used in plating and 6% in other uses, including coins, electronics, and in batteries for portable equipment and hybrid cars.
- ▶ 还有9%的镍被用在电镀上，另6%用于其他方面，包括硬币、电子产品，便携设备、混合动力车上的充电电池等。



NICKEL USES AND FACTS (contd)

- ▶ In many of these applications listed above, there are no substitute for nickel without reducing performance or increasing cost.
 - ▶ 在上述多项应用中，要么降低性能，要么增加成本，还没有其他替代物可以取代镍
- ▶ The major producers of Nickel are Australia, Russia, Cuba, Canada, Brazil, New Caledonia, South Africa, Indonesia and China.
 - ▶ 镍的主要生产国：澳大利亚、俄罗斯、古巴、加拿大、巴西、新喀里多尼亚、南非、印度尼西亚和中国
- ▶ The average price of the nickel is US \$ 32,000 per metric tones (Ref: www.infomine.com, dated 5th July 2007 to 5th August 2007).
 - ▶ 镍的均价为每公吨32,000美元（可参考2007年7月5日至2007年8月5日www.infomine.com上相关信息）



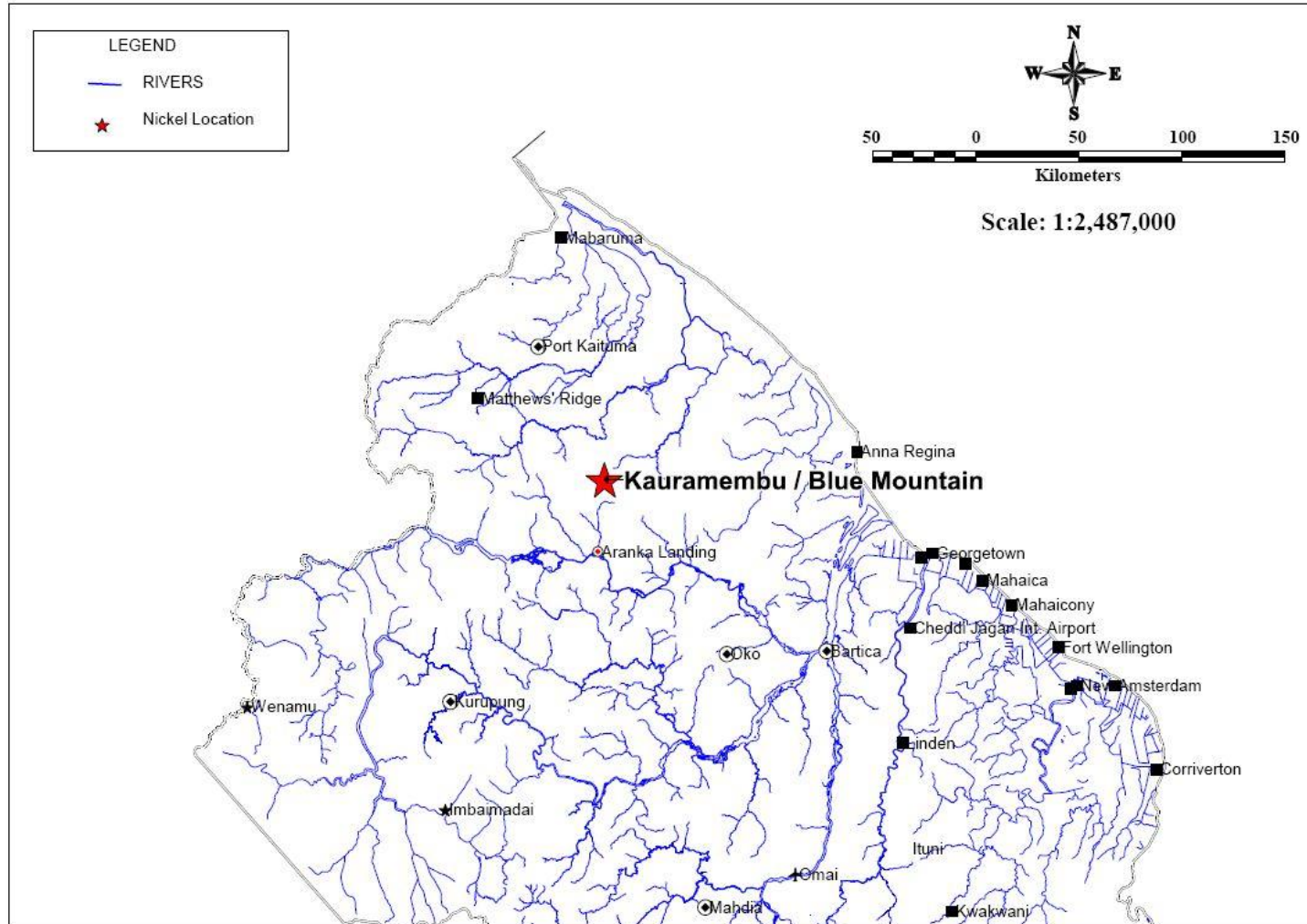
NICKEL OCCURRENCES IN GUYANA

- ▶ In Guyana, Nickel occurs primarily in the Kauremembu Blue Mountains, Northwest Mining District.
- ▶ 镍矿在圭亚那主要分布于西北矿区的Kauremembu Blue山脉。
- ▶ A UN assessment of the area in 1960 indicated that an area of nickel laterite was discovered overlying narrow bands of ultramafic rocks.
- ▶ 联合国在1960年对该地区做的评估表明，有红土镍矿存在于一条窄窄的超基性岩石带上。
- ▶ The nickel is largely associated with olivine minerals of the serpentinized peridotites in the area.
- ▶ 镍矿大多与橄榄石矿有关联。
- ▶ Drilling of this area showed conclusively that though Ni grades were high, the area was too small for commercial exploitation.
- ▶ 对这一区域的钻探最终显示虽然该地区的镍矿品质极高，但由于区域太过狭小而很难进行商业性开采。



NICKEL OCCURRENCE IN GUYANA

镍矿在圭亚那的分布





MOLYBDENUM

钼



MOLYBDENUM ORE
钼矿石



MOLYBDENUM USES AND FACTS

钼的用途

- ▶ valuable alloying agent, as it contributes to the hardness and toughness of quenched and tempered steels.
- ▶ 重要的合金熔合剂，可使淬火的钢变得更加坚硬且具韧性。
- ▶ used in certain nickel-based alloys which are heat-resistant and corrosion-resistant to chemical solutions.
- ▶ 可用于某些含镍的合金中，使其对某些化学溶液具有耐热和防腐的能力。
- ▶ electrical and nuclear applications and as a catalyst in the refining of petroleum.
- ▶ 用于电能和核能应用及石油提炼的催化剂。
- ▶ There are significant molybdenum resources around the world with an average price of US 25 per pound according to UGSG mineral summary,2006.
- ▶ 根据UGSG出台的2006年矿产资源综述，钼矿资源在世界范围内，蕴藏丰富，平均价格为每磅25美元



MOLYBDENUM OCCURRENCES IN GUYANA

钼在圭亚那的分布

- ▶ Molybdenum has been found in significant quantities, during drilling, geochemical soil and sediment survey at following four regions: (1) Yakishuru Hill, Barama (2) Eagle Mountain, Potaro District (3) Ianna Hill, Barama (4) Jubilee – Million Mount, Puruni.
- ▶ 经过对下述四个区域的钻探，土壤化探和沉积物勘测后发现，钼在圭亚那储量巨大：Yakishuru Hill, Barama; Eagle Mountain, Potaro District; Ianna Hill, Barama; Jubilee Million Mount, Puruni.
- ▶ For Eagle Mountain, mineralization is generally associated with the eagle mountain granite porphyry.
- ▶ 在Eagle Mountain山上，矿体多与山上花岗斑岩有关。
- ▶ For Yakishuru Hill, Molybdenite mineralization occurs as veinlets and disseminations in leucocratic granite (“alaskite”) stock which intrudes feebly molybdeniferous intermediate basic volcanics.
- ▶ Yakishuru山丘，钼矿体多以细脉呈现。



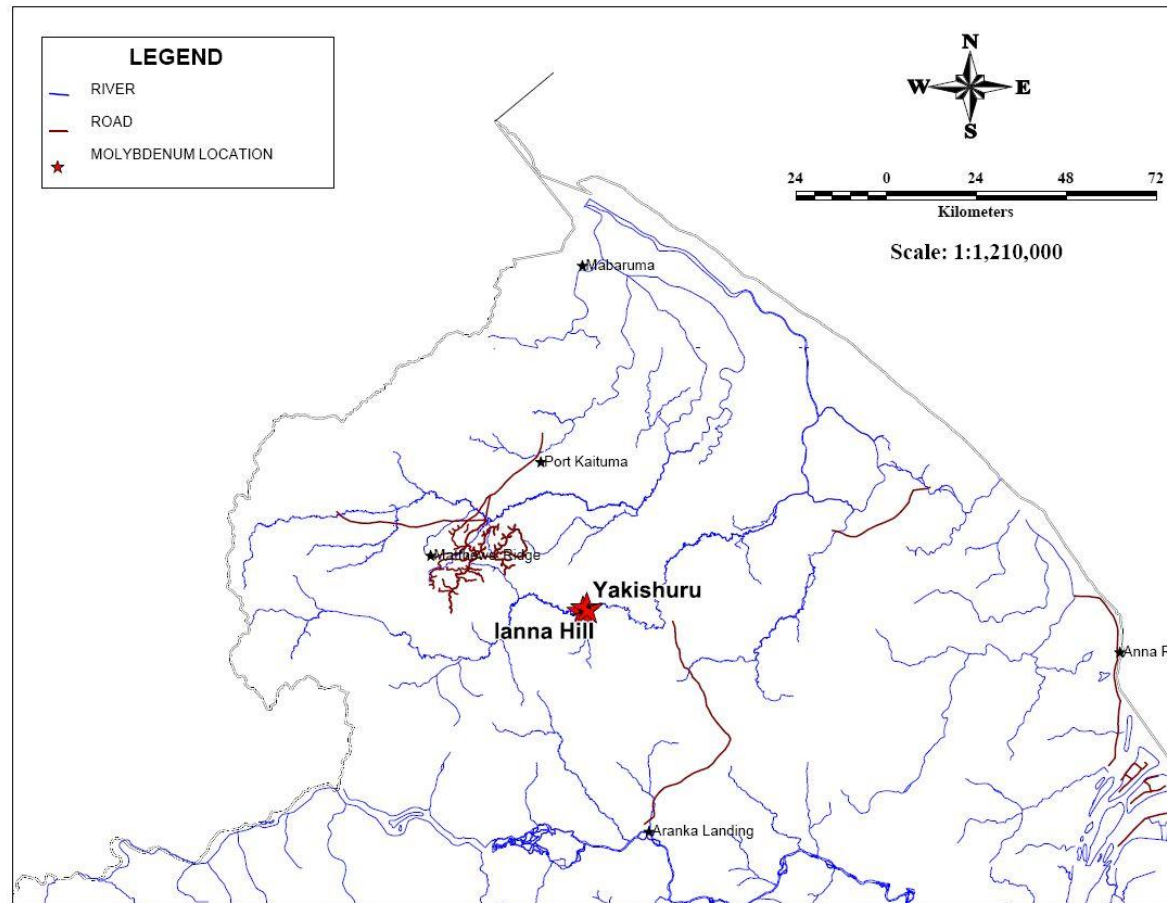
MOLYBDENUM OCCURRENCE IN GUYANA (contd)

- ▶ For Ianna Hill, There are mainly two types of anomalous zones in Ianna area, they are Eastern and Western Anomalous zone, both the zones contain molybdenum soil anomaly.
- ▶ 在Ianna山丘，含钼土壤主要分布在东部和西部两个不规则的区域。
- ▶ For Jubilee – Million Mount, Soils over rather leucocratic porphyry carry up to 50 ppm. Molybdenum on a background of less than 7 ppm. Unchecked soil values nearly reach 130 ppm. Only a small part of the porphyry area has been examined.
- ▶ 在Jubilee–Million山上只有少部分的斑岩经过勘验。



MOLYBDENUM OCCURRENCES IN GUYANA

钼矿在圭亚那的分布





MAGNESITE

菱镁矿



MAGNESITE ORE
菱镁矿石



MAGNESITE USES AND FACTS

菱镁矿石的用途

- ▶ Similar to the production of lime, magnesite can be burned in the presence of charcoal to produce MgO, which in the form of a mineral is known as periclase. Large quantities of magnesite are burnt to make magnesium oxide: an important refractory material used as a lining in blast furnaces, kilns and incinerators.
- ▶ 与生产石灰相仿，菱镁矿石可用木炭烧制而生成氧化镁，从而形成一种矿物质叫做方镁石。大量菱镁矿石经燃烧后，用以制作镁氧化物：一种重要的耐火材料，可用作鼓风炉、窑炉、焚化炉的内壁。
- ▶ Magnesite can also be used as a binder in flooring material. Furthermore it is being used as a catalyst and filler in the production of synthetic rubber and in the preparation of magnesium chemicals and fertilizers.
- ▶ 菱镁矿石还可用作室内地板的粘合剂。此外，它也被用作生产人造橡胶的催化剂和填充料及制作镁质化工材料和化肥的制剂。
- ▶ In fire assay, magnesite cupels can be used for cupellation as the magnesite cupel will resist the high temperatures involved.
- ▶ 在炉火试金中，由于其良好的抗高温性能，菱镁石烤钵可用于试金灰吹法。
- ▶ At times magnesite is dyed to make beads used as ornaments.
- ▶ 菱镁矿石有时被染上色，用于制作装饰性的珠子。



MAGNESITE USES

菱镁矿石头的用途

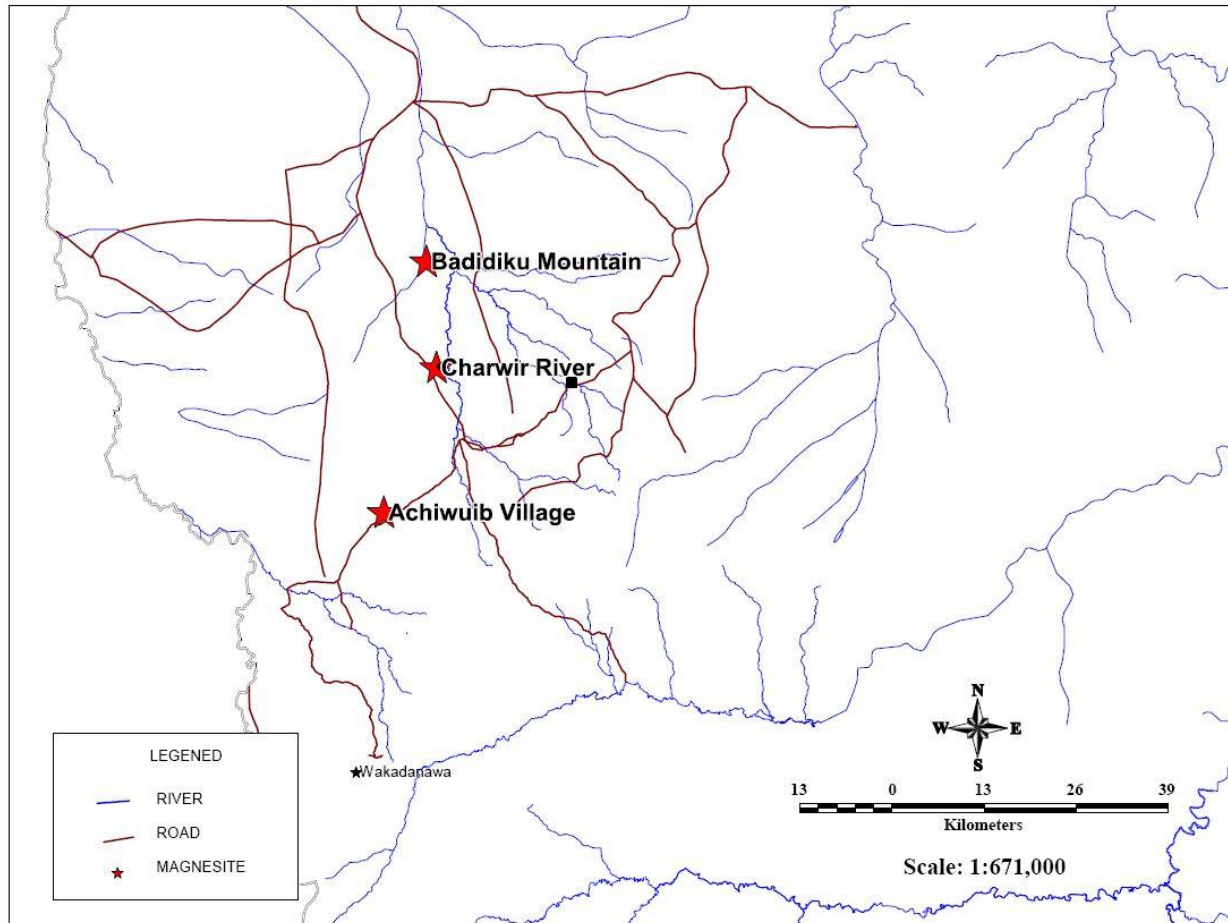


MAGNESITE CUPEL
菱镁石烤钵



MAGNESITE OCCURRENCES IN GUYANA

菱镁矿在圭亚那的分布图





KYANITE

蓝晶石





KYANITE USES AND FACTS

蓝晶石的用途

- ▶ Used in the manufacture of refractory products such as the bricks, mortars and kiln furniture used in high temperature furnaces.
- ▶ 用于耐火产品的生产。如：砖块，灰泥和窑炉设备之高温炉。
- ▶ Kyanite is also in products used in the automotive and railroad industries where heat resistance is important.
- ▶ 蓝晶石也被用在汽车、铁路工业中那些需要耐热的产品上。
- ▶ Kyanite has properties that make it exceptionally well suited for the manufacture of a high refractory-strength porcelain – a porcelain that holds its strength at very high temperatures.
- ▶ 由于蓝晶石自身的特质，使得它成为制作高耐火瓷器的最佳材料。
- ▶ Kyanite's heat resistance and hardness makes it an excellent material for use in the manufacture of grinding wheels and cutting wheels.
- ▶ 蓝晶石的耐热性和超强硬度使得它成为制作磨砂轮和切割砂轮的优质材料。



KYANITE USES AND FACTS

蓝晶石的用途

- ▶ Clear and colourful Kyanite is highly prized by those who cut gemstones.
- ▶ 晶莹剔透和色彩鲜艳的蓝晶石被宝石从业者所珍视。
- ▶ Kyanite is a mineral found mainly in metamorphic rocks. It most often forms from the high pressure alteration of clay minerals during the metamorphism of sedimentary rocks.
- ▶ 蓝晶石多分布在变形岩石之中。它多形成于沉积岩变形过程中，高压下变化的黏土矿。
- ▶ Kyanite specimens have a variable hardness even on the same crystal face.
- ▶ 蓝晶石样本显示即便是在同一晶面，它的硬度也是千差万别的。
- ▶ The average value of Kyanite mineral is approximately US \$ 144.45 per ton.
- ▶ 蓝晶石的均价大约为每吨144.45美元。



USES OF KYANIITE

蓝晶石的用途



The porcelain insulator on this spark plug is made from kyanite.

这个火花塞上的陶瓷绝缘体是用蓝晶石制作的

Kyanite is used to make jewellery
可用于制作珠宝



KYANITE OCCURRENCE IN GUYANA

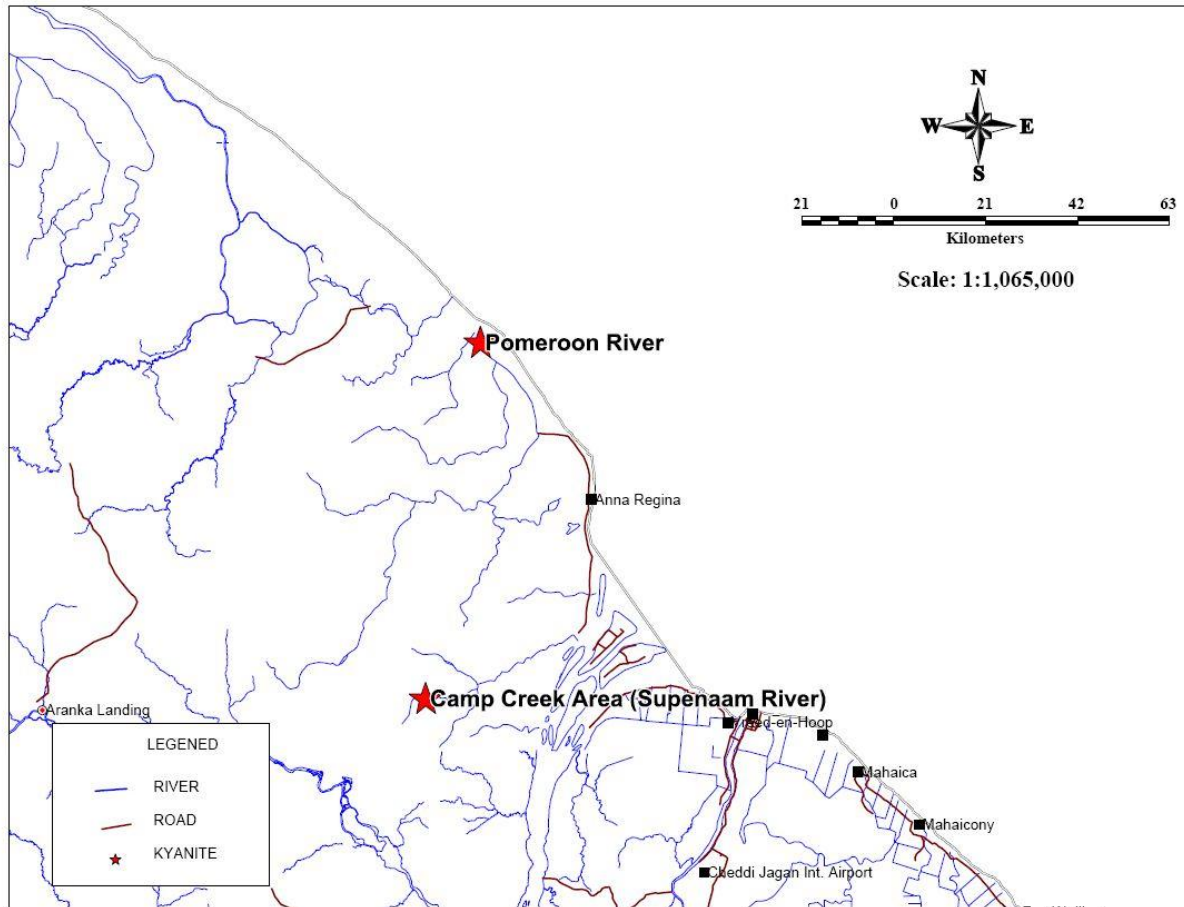
蓝晶石在圭亚那的分布

- ▶ In Guyana, Kyanite is particularly abundant in the upper Karani/Camp Creek area of the Supenaam Basin.
- ▶ 在圭亚那Supenaam盆地的上Karani/Camp Creek地区是蓝晶石矿的富集地区。
- ▶ Kyanite occurs primarily in the meta sediment stratum as kyanite schists.
- ▶ 蓝晶石主要分布在变质沉积岩中。
- ▶ Mabulla 1973 indicated that the combined reserve of kyanite schists in the area as 3.7 MMT.
- ▶ 1973年Mabulla显示该地区蓝晶石片岩的储量大概在3.7蒙脱土。



KYANITE OCCURRENCES IN GUYANA

蓝晶石在圭亚那的分布图





MANGANESE

錳



MANGANESE ORE

錳矿石



MANGANESE USES AND FACTS

锰的用途

- ▶ Manganese is the fourth largest metal consumed in the world, behind iron, aluminum and copper and is in short supply.
- ▶ 锰是世界上第四大消费金属，位于铁、铝和铜之后，经常处于短缺状态。
- ▶ Nearly 90% of all Mn produced each year is used in the production of steel and iron.
- ▶ 每年出产的90%的锰用于生产钢和铁。
- ▶ Manganese Dioxide(MnO_2) is used in cell batteries to prevent the formation of Hydrogen.
- ▶ 二氧化锰用在芯电池中，以阻止形成氢。
- ▶ Mn is used as a drying agent in black paints.
- ▶ 锰在黑漆中可用作干燥剂。
- ▶ Mn is used to remove the green colour in glass that is caused by iron contaminants.
- ▶ 锰可用来去除玻璃中由于铁污染物而形成的绿色



MANGANESE OCCURRENCE IN GUYANA

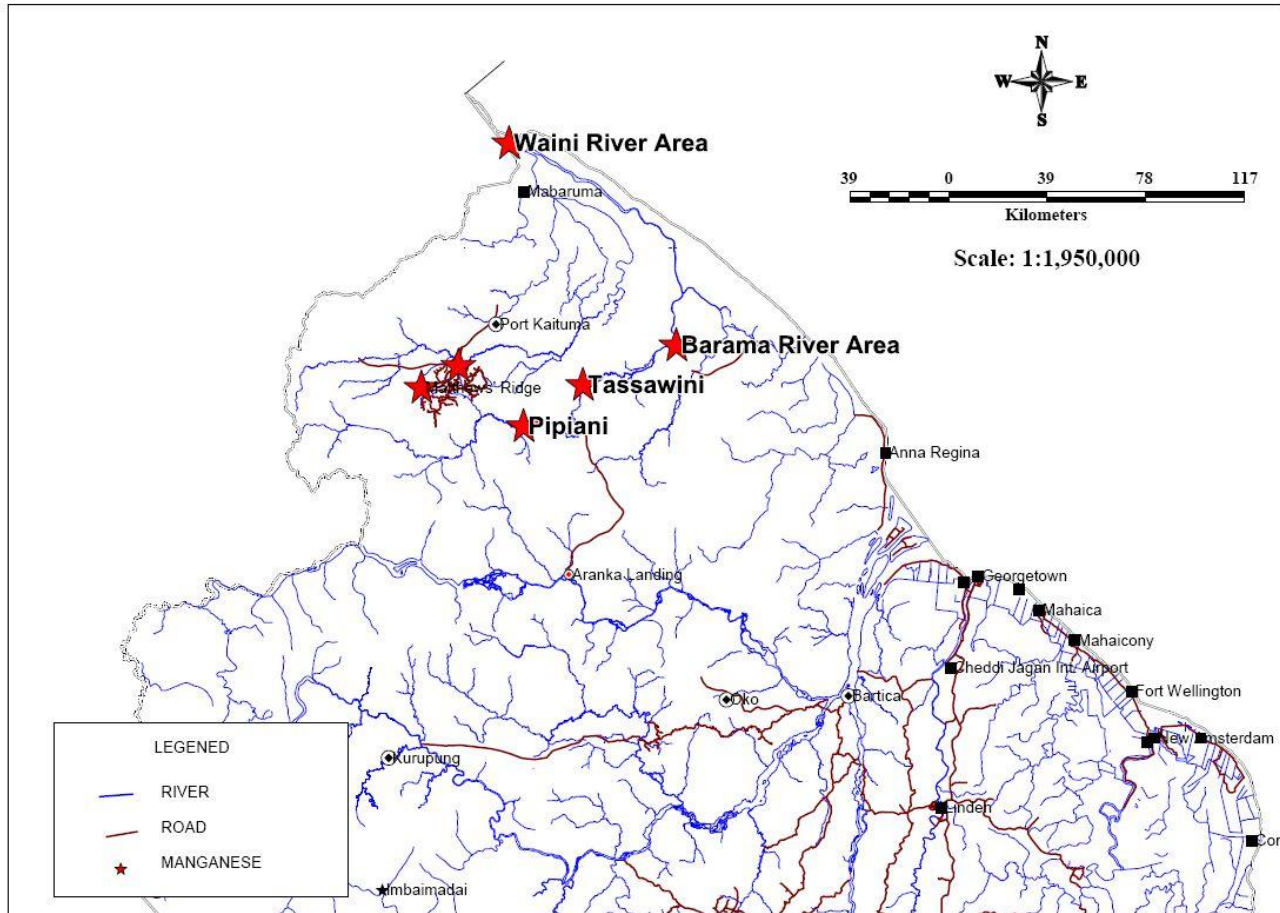
锰在圭亚那的分布

- ▶ During the 1962–1968 mining operations at Matthews Ridge, in excess of 1.66 million tonnes of manganese concentrate were shipped from the mine out of a resource of 2.6 million tonnes of manganese concentrate at the start of the operations in 1962.
- ▶ 1962年至1968年在Matthews山脊所进行的采矿作业，总计有166万吨的浓缩锰由矿区运出。1962年采矿作业之始该矿区的浓缩锰资源是260万吨。
- ▶ At Pipiani, the historically calculated resources of available concentrates, based on the mining and beneficiation methods used at Matthews Ridge, were 642,000 tonnes of 42% Mn on the basis of 35 drill holes, numerous pits and trenches.
- ▶ 在Pipiani对于现有的浓缩锰资源进行的历史性的估算，是根据Matthews山脊使用的采矿、选矿方法而得出的。估算的锰的储量为642,000吨，纯度为42%，为此该地留下了35个钻眼和无数的矿井和沟槽。
- ▶ Total historical in situ resources at Matthews Ridge were estimated to be 3.6 million tonnes of 33.4% Mn recoverable concentrate.
- ▶ Matthews山脊一地的所有的相关历史数据表明，该地估算有360万吨，纯度为33.4%的可开采浓缩锰。



MANGANESE OCCURRENCES IN GUYANA

锰在圭亚那的分布图





NIOBIUM-TANTALUM MINERALS

铌钽矿



RAW ORE
铌钽原矿
石



NIOBIUM – TANTALUM USES AND FACTS

铌钽矿的用途

- ▶ as the metal powder, it is used in the production of electronic components, mainly capacitors and some high-power resistors
- ▶ 作为金属粉末，它可用于生产电子元器件，主要如电容器和大功率电阻器
- ▶ It is also used to produce a variety of alloys that have high melting points, are strong and have good ductility
- ▶ 它可用于生产各种具有高熔点和高强韧性的合金
- ▶ It is used for coating in the construction of orthopaedic implants due to the ability to form a direct bond to hard tissue and it's bio inertness
- ▶ 在整形植体的构建中，由于其具有与硬组织形成直联的能力且它是生物惰体，铌钽可用作植体表面涂层
- ▶ The high melting point and oxidation resistance lead to the use of the metal in the production of vacuum furnace parts
- ▶ 高熔点和抗氧化使此金属成为生产真空炉的零部件。
- ▶ Tantalum is extremely inert and is therefore formed into a variety of corrosion resistant parts, such as thermo-wells, valve bodies, and tantalum fasteners
- ▶ 钽是一种极其不活跃的金属，因此可构成多种的抗腐蚀零部件，如：温度计套管，阀体，钽质扣件。



NIOBIUM – TANTALUM USES

铌钽矿的用途

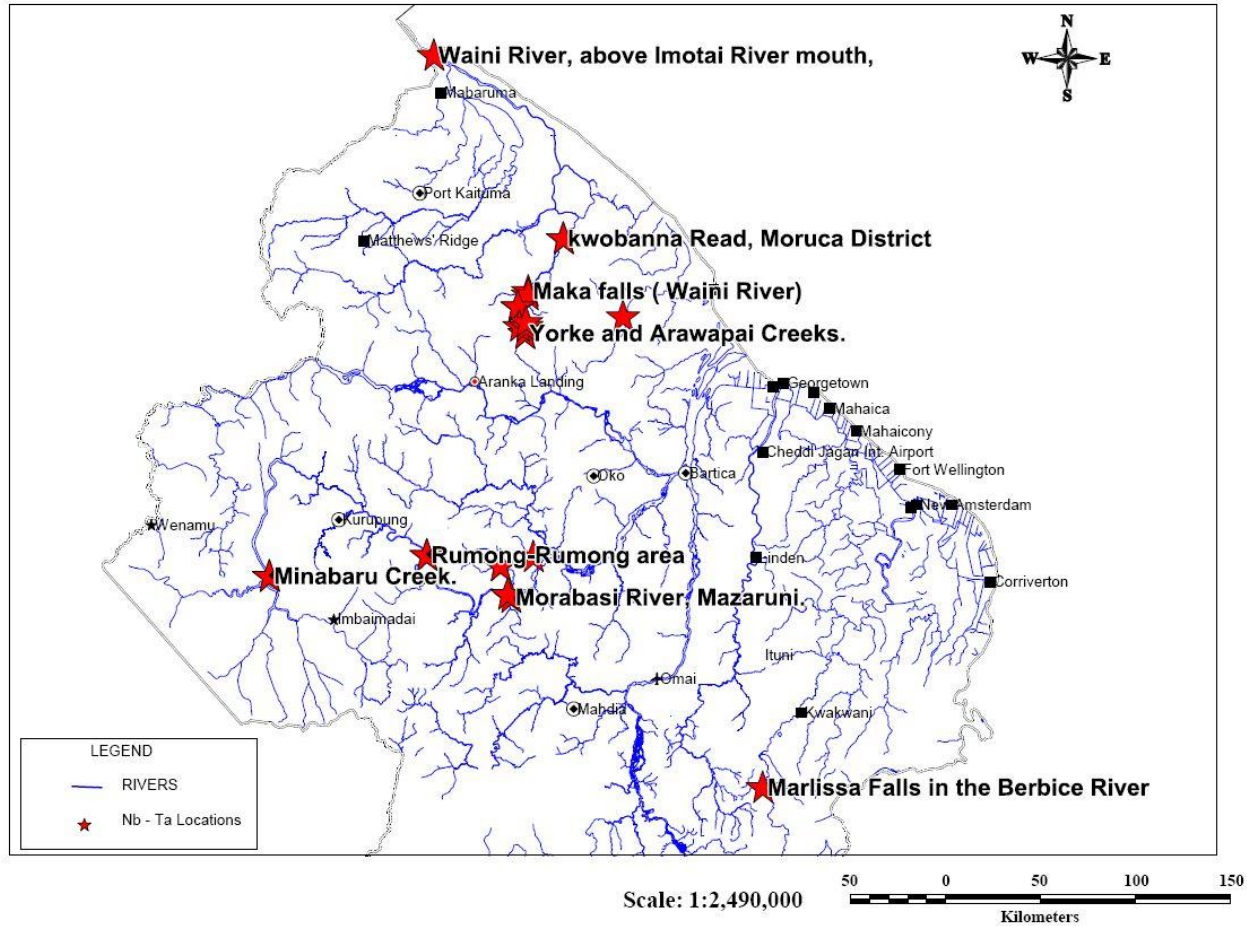


Nb – Ta minerals are found in most cell phones and electronics
铌钽矿物质在很多的手机和电子产品中可以看到



NIObIUM TANTALUM OCCURRENCE IN GUYANA

铌钽矿在圭亚那的分布图





HEMATITE

赤铁矿



HEMATITE ORE
赤铁矿石



HEMATITE USES AND FACTS

赤铁矿的用途

- ▶ Hematite is used commonly as iron ore
- ▶ 赤铁矿通常用作铁矿石
- ▶ it is used as ornamental jewellery
- ▶ 它可被用作装饰性珠宝
- ▶ it also has uses in paint ore and pigments
- ▶ 它还可被用作涂料和燃料
- ▶ The colour of most red and brown rock, such as sandstone, is caused by small amounts of Hematite
- ▶ 多数红色和棕色岩石（如砂岩）的颜色，是由于岩石中有少量的赤铁矿存在。



HEMATITE USES

赤铁矿的用途



HEMATITE CRYSTALS
赤铁矿晶体



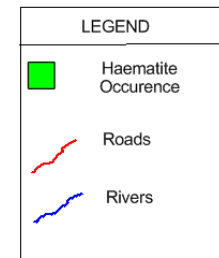
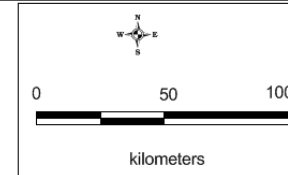
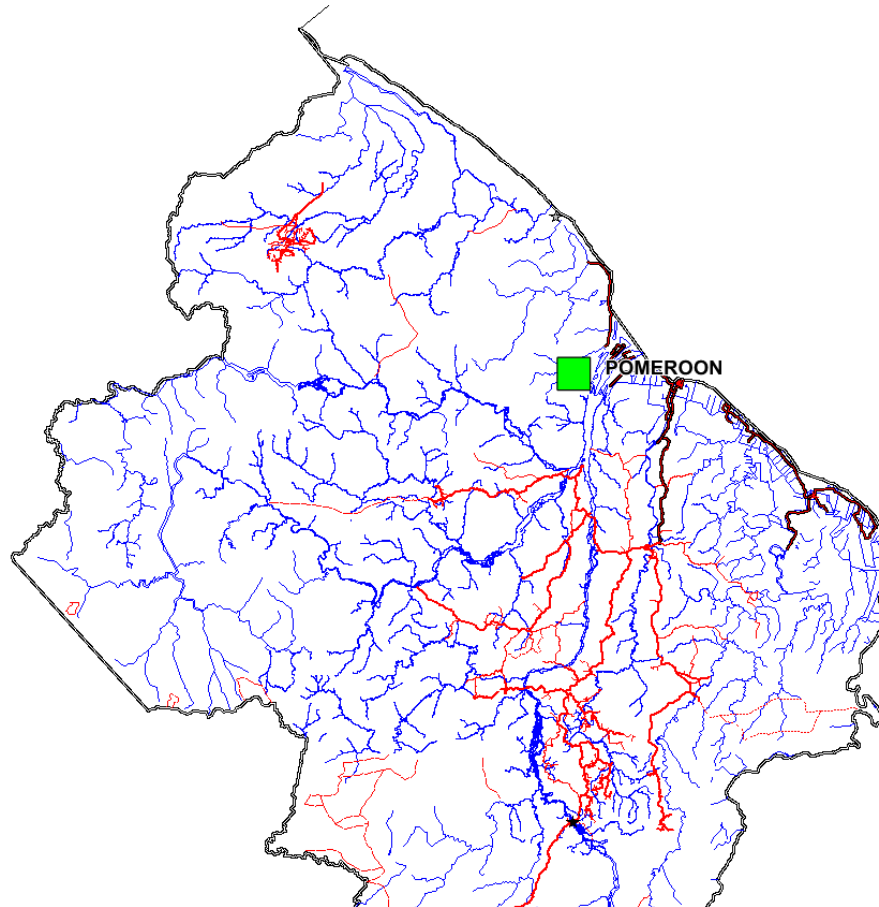
BRACELETS MADE OF HEMATITE
用赤铁矿制作的手链



HEMATITE OCCURRENCE IN GUYANA

赤铁矿在圭亚那的分布

LOCATION MAP OF HAEMATITE OCCURRENCE: GUYANA





Quartz Crystals Facts and Formation

石英晶体的用途

- ▶ Quartz is an essential constituent of granite and other felsic igneous rocks.
- ▶ 石英是花岗岩和其他长英火山岩的重要组成部分
- ▶ It is very common in sedimentary rocks such as sandstone and shale and is also present in variable amounts as an accessory mineral in most carbonate rocks.
- ▶ 它在沉积岩例如砂岩和页岩中普遍存在。同时它也以不同数量的附生矿呈现于绝大部分的碳酸盐岩中。
- ▶ Known occurrences are found in Karanang, Kako River and Kurupukari
- ▶ 石英晶体在圭亚那已知的分布地：Karanang, Kako河和Kurupukari。



Quartz Crystal – Uses

石英水晶用途

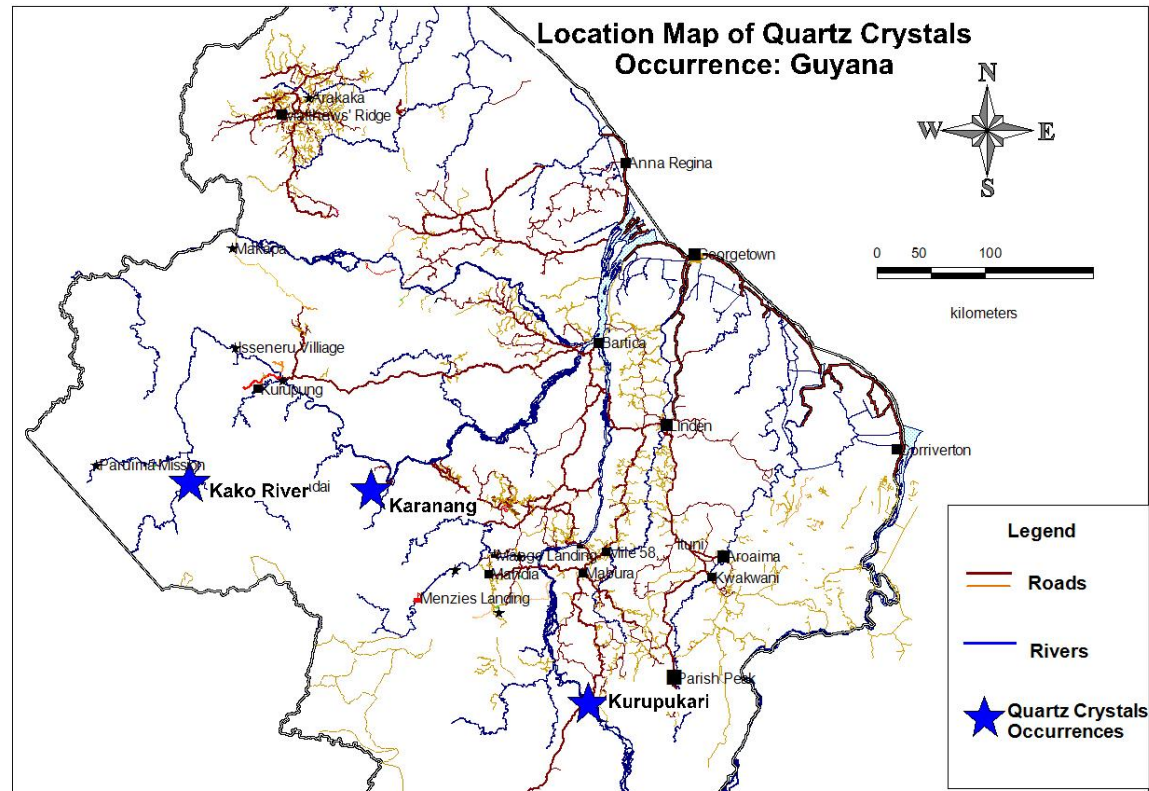
- ▶ Quartz Crystals is commonly used minerals in the making of jewelry and hard-stone carvings
- ▶ 石英水晶是制作宝石和顽石雕刻的主料
- ▶ Applications that exploit its piezoelectric property such as high power sources, sensors, actuators, frequency standards and motors.
- ▶ 开发其压电特性的其他实际应用。例如：高电压灯具，传感器，制动器，频率标准和马达等。





Quartz Crystals Occurrences in Guyana

石英水晶在圭亚那的发布图





Soapstone(Talc) Facts and Formation

皂石（滑石）用途和构成

- ▶ Talc is a common metamorphic mineral in metamorphic belts which contain ultramafic rocks, such as soapstone (a high-talc rock), and within white-schist and blue-schist metamorphic terrains.
- ▶ 滑石是一种常见的变形矿石，多出现在富含超镁铁质岩的岩石变形带。例如：皂石和由白结晶片岩和蓝结晶片岩组成的变质岩区。
- ▶ Known occurrence is found in Kauramembu Mountains
- ▶ 滑石在圭亚那的已知分布地是Kauramembu山脉



Soapstone (Talc) – Uses

皂石（滑石）的用途

- ▶ Talc is used in many industries such as paper making, plastic, paint and coatings, rubber, food, electric cable, pharmaceuticals, cosmetics and ceramics.
- ▶ 滑石可用于多项工业生产中。如：造纸，塑料，油漆和涂料，橡胶，食品，电缆，制药，化妆品和制陶
- ▶ Talc is often used for surfaces of lab counter tops and electrical switchboards because of its resistance to heat, electricity and acids.
- ▶ 由于其抗热，抗电和抗酸的性能，滑石常用来制作实验室台面和电源控制板
- ▶ Talc is used in baby powder, an astringent powder used for preventing rashes on the area covered by a diaper.
- ▶ 滑石用于生产宝宝爽身粉—一种收缩粉，防止宝宝纸尿裤所覆盖的皮肤可能出现的皮疹
- ▶ Talc is also often used as a drying agent to keep a player's hands moist free and marking chalk.
- ▶ 滑石也经常用于制成干燥剂，使运动员的双手保持干燥以及制作成标记粉笔。



Soapstone (Talc) - Uses

皂石（滑石）-用途



Beautifying Products
美容产品



Soapstone
Countertop
皂石工作台面



Paper Production
纸质产品

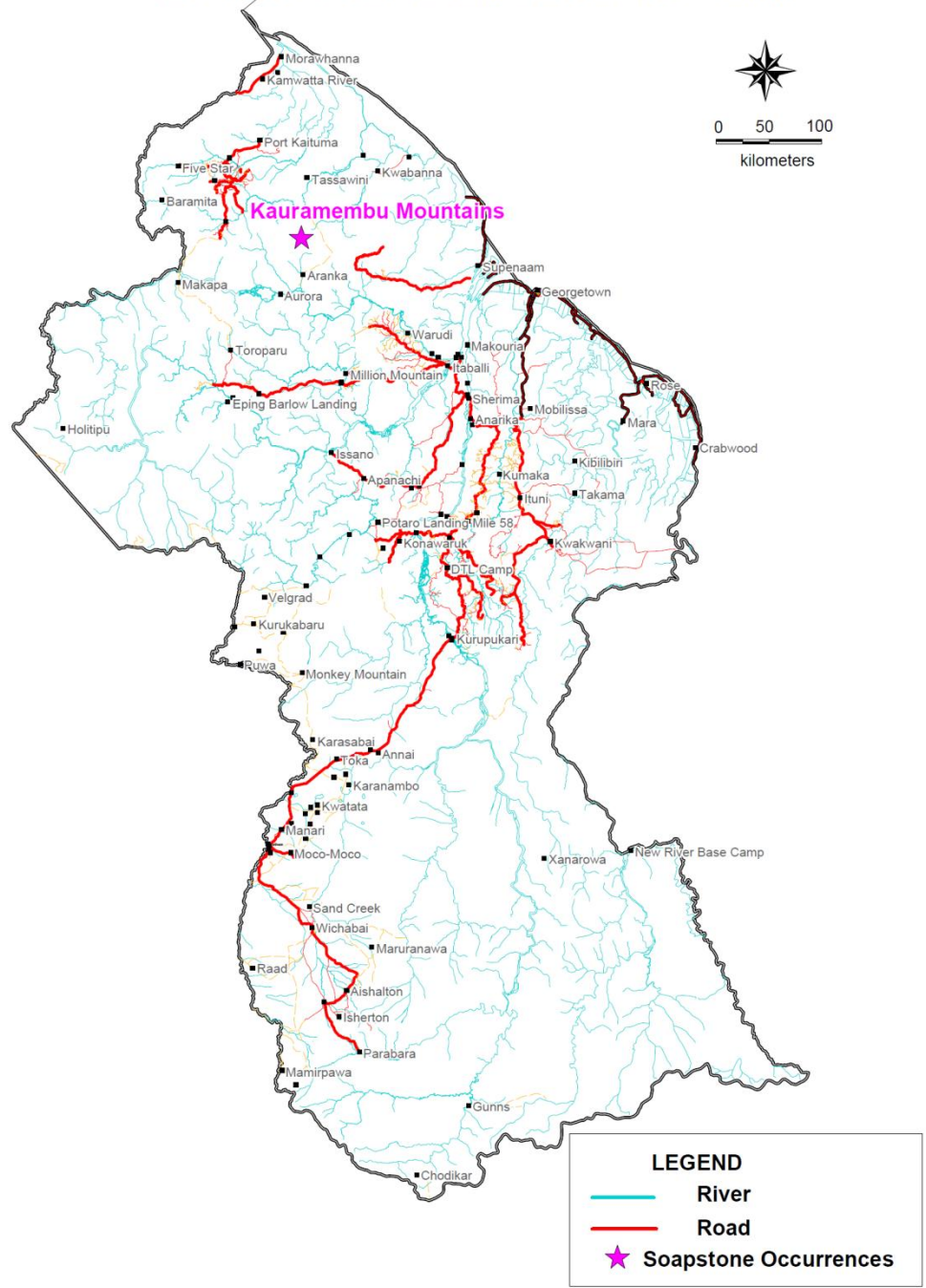


Soapstone (Talc) Occurrence in Guyana

皂石（滑石）在圭亚那的 分布图



LOCATION MAP OF SOAPSTONE OCCURRENCES: GUYANA





Topaz Facts and Formation

黄晶介绍及形成

- ▶ Topaz is a silicate mineral most often found in igneous rocks of felsic composition.
- ▶ 黄晶是一种硅酸盐矿石，多发现于有长英质的火成岩中
- ▶ It is also found in some hydrothermal veins and the hydrothermally altered rocks that surround them.
- ▶ 黄晶也可出现在一些热液矿脉上，周边的岩石也因此被热液改造了
- ▶ It is a common mineral of pegmatite and also found in the cavities of rhyolite and granite.
- ▶ 黄晶常见于伟晶岩中，同时也可在流纹岩和花岗岩的岩体内部发现它的蛛丝马迹
- ▶ Known occurrences are found in Eping, Semang-Potaro and Maikawk
- ▶ 圭亚那已知黄晶的分布地是Eping, Semang-Potaro和Maikawk



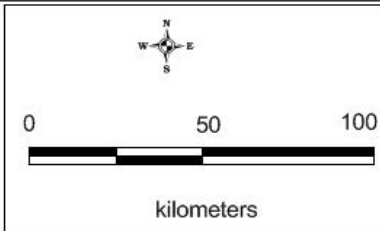
Topaz - Uses

黄晶用途

Topaz is as a gemstone
黄晶属宝石系列



LOCATION MAP OF TOPAZ OCCURRENCE: GUYANA






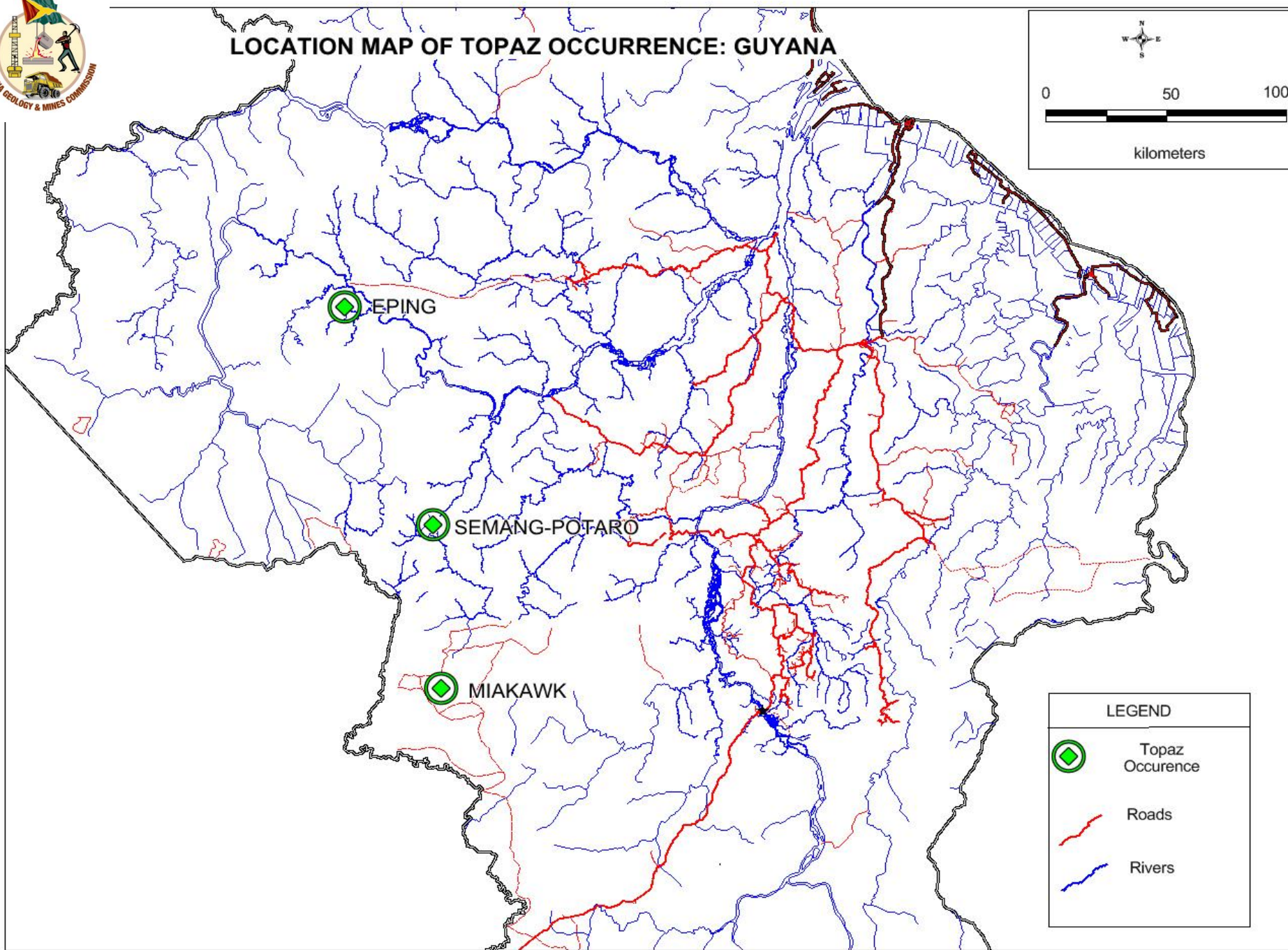
EPING

SEMANG-POTARO

MIKAWK

LEGEND

-  Topaz Occurrence
-  Roads
-  Rivers





Feldspars Facts and Formation

长石介绍和形成

- ▶ Feldspars occur in all classes of rocks.
- ▶ 长石可出现在所有的岩石中
- ▶ They are widely distributed in igneous rocks, which indicates that they have formed by crystallization from magma.
- ▶ 长石广泛分布于火山岩中，它是由岩浆中的结晶体组成的。
- ▶ Known occurrences are found in Batavia/Okro Road and Flat Rock – A & B
- ▶ 圭亚那已知的分布地：Batavia/Okro路和Flat Rock-A & B

Feldspars – Uses 长石用途



Glass Making
玻璃器皿制作



Ceramics
陶器

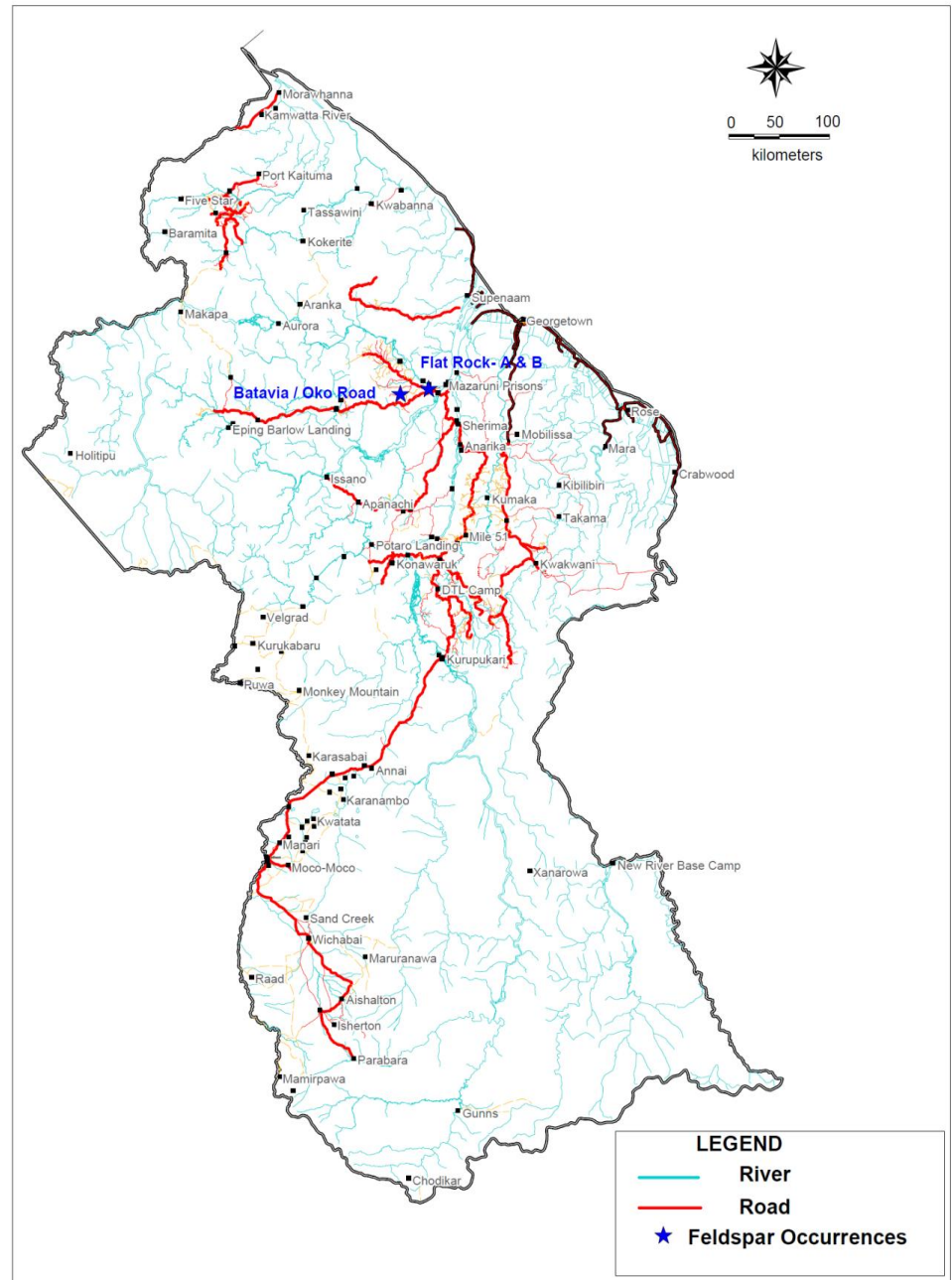


Feldspars Occurrence in Guyana

圭亚那长石的分布图



LOCATION MAP OF FELDSPAR OCCURRENCES: GUYANA





Clays Facts and formation

黏土介绍和形成

Clays are formed from weathering of silica rich rocks such as:

- Diorite, Granite, pegmatite and Gabbro

黏土是由富含石英的岩石风化而形成的，例如：闪长岩，花岗岩，伟晶岩和辉长岩

Known occurrences are found in Hope Mines, Topira Mines, Kamakabra, Tumatumar, Kwakwani, Rockstone, Orealla and Warabarabru

圭亚那已知的黏土分布地： Hope Mines, Topira Mines, Kamakabra, Tumatumar, Kwakwani, Rockstone, Orealla和Warabarabru



Clays - Uses 黏土的使用

- ▶ As a building material, it is used in the form of brick, either sun-dried or fired.
 - ▶ 作为建筑材料，黏土可被制成砖（太阳晒干或火烧）
 - ▶ Clays are also used in the manufacture of tile, porcelain, china, and earthenware, and of pipe for drainage and sewage.
 - ▶ 黏土也可制成瓷砖，瓷器，陶器，排水管和排污管
 - ▶ Highly absorbent, bentonite is much used in foundry work for facing the molds and preparing the molding sands for casting metals.
 - ▶ 黏土有很强的吸附能力，胶土很多用于制作浇铸金属用的模具
 - ▶ The less absorbent bentonites are used chiefly in the oil industry, as filtering and deodorizing agents in the refining of petroleum and mixed with other materials, as drilling mud to protect the cutting bit while drilling.
 - ▶ 吸附能力稍差的胶土主要用于石油工业。在提炼石油和与其他材料混合时，它可起过滤和除臭剂的作用。也可用胶土作为钻泥，以保护钻井钻头。
 - ▶ Other uses are in the making of fillers, in clarifying water and wine, in purifying sewage, and in the paper, ceramics, plastics, and rubber industries.
- 黏土其他的用途如区分水和红酒和净化污水时，可以将其做成填充料。也可用于造纸，制陶，塑料制品和橡胶产业。



Clays - Uses

黏土的用途





Clay Occurrences in Guyana

圭亚那黏土分布图

