# LITHIUM

## GLOBAL OUTLOOK

**Looking at the raw materials needed to supply the lithium-ion economy, Benchmark Mineral Intelligence forecasts that by 2029, demand for lithium will grow by more than six times the current need, with a possible need for significant additional supply, as depicted in Figure 1.**

**Excluding U.S. production, worldwide lithium supply in 2021 increased by 21% to approximately 100,000 tons from 82,500 tons in 2020 in response to strong lithium-ion battery market demand and increased lithium prices (USGS, 2022). Global consumption of lithium in 2021 was estimated to be 93,000 tons, a 33% increase from 70,000 tons in 2020. Four mineral operations in Australia, two brine operations in Argentina and Chile, and two brine and one mineral operation in China accounted for most of the world's lithium production. Smaller operations in Brazil, China, Portugal, the United States, and Zimbabwe also contributed to world lithium production. Owing to the resurgence in demand and increased prices of lithium in 2021, established operations worldwide resumed capacity-expansion plans, which were postponed in 2020 in response to the global COVID-19 pandemic (USGS, 2022). According to USGS (2022), lithium supply security has become a top priority for technology companies in Asia, Europe, and the United States. Strategic alliances and joint ventures among technology companies and exploration companies continued to be established to ensure a reliable, diversified supply of lithium for battery suppliers and vehicle manufacturers. This includes technological endeavours to produce large-scale lithium-based storages that aim for green energy transitions from renewable sources such as hydroelectric, solar, wind, and geothermal power. The Geological Survey of India discovered a new lithium deposit containing 5.9 million tonnes of inferred lithium resources in the country's Salal-Haimana area of the Reasi District of Jammu and Kashmir. As a result, the exploration of lithium has been reinvigorated.**

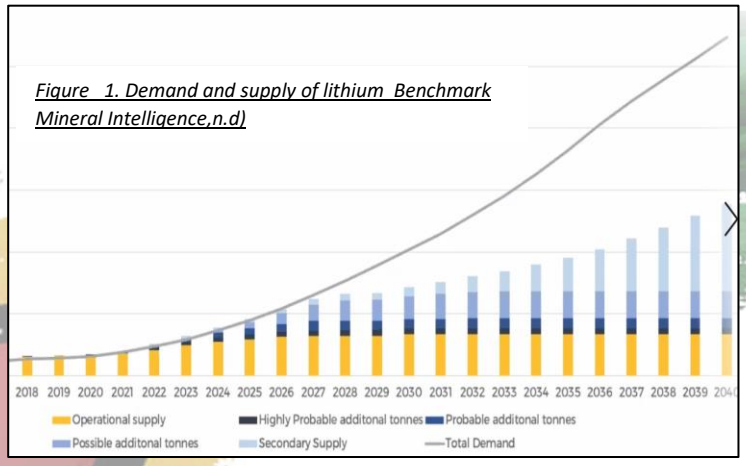


*Figure 1. Demand and supply of lithium Benchmark Mineral Intelligence,n.d)*

## LITERATURE REVIEW

**In Guyana, exploration for lithium began recently following the increasing demand for the "battery metal" though prospecting for the associated metals of this metal, such as tantalum-niobium, was carried out since the 1920s and the 1940s, and important discoveries were made at several places including the Mazaruni region (Morabisi batholith).**

**In this particular area, Guyana Strategic Minerals (GSM), in partnership with Greenpower Energy (GPE), was granted permission to conduct geophysical and geological surveys in 2016, for the purpose of prospecting lithium, coltan (columbite-tantalite), and rare earth elements.**

**The GSM-GPE joint venture carried out stream sediment, soil, trench, and finally, test drilling and discovered lithium mineralization which is associated with tantalum, niobium, REE, and other metals within the LCT pegmatite of the Morabisi batholith as depicted in Figure 2 and the watersheds of the Robello Creek.**

**The favorability of the region is expressed by GreenPower (2022), which indicated that lithium-bearing pegmatites have been identified in outcrop within the quartz-microcline-tourmaline zone and on-trend with mapped LCT type pegmatite veins/ring dykes at the southern margins of the Morabisi batholith covering 40 km along strike. In addition, the report indicates up to 1.04% Li from a rock chip sampling programme (Greenpower Energy confirms, 2017) which also returned high concentrations of Rb, Cs, Be and Ta in addition to Li.**

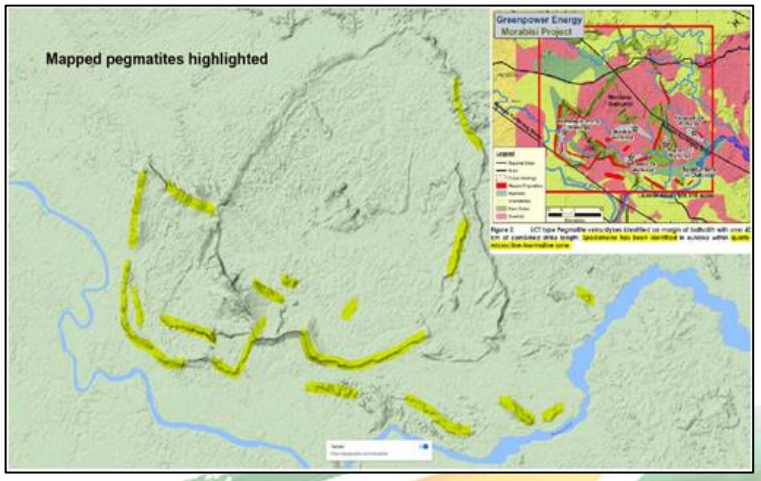


***Figure 2. Local geology –outline of the Morabisi batholith hosting the LCT- pegmatite*** **(Greenpower Energy Limited, 2019)).**

**The Joint Venture (in 2018) has disclosed that LCT pegmatite in trenches of the Turesi Ridge of the Morabisi granite identified several spodumene-rich, high-grade lithium locations for test drilling.**

## LOGISTICS

**The lithium occurrence in northern Guyana is accessible by air or water through the central location of Port Kaituma, which is serviced by an asphalt airstrip. Notwithstanding this, there are alternative airstrips to reach the region. From Port Kaituma, access to specific locations is possible either by river, road, or a combination of these routes. Similarly, the southern lithium occurrences can be accessed via the regional hub (Lethem), which is reachable by road or air, with roads being the main mode for specific location access, while the occurrence in central Guyana is accessible by road.**

**The Morabisi area is located approximately 150km SW of Georgetown. An existing road services the area, and there is planned infrastructure for electricity and several local communities/hubs within the project area, as indicated on the JV's website (www.greenpowerenergy.com). While the permit is still active, this information is used to showcase the ease of access/logistics and high prospectivity of lithium and related metals in Guyana.**

## SCOPE AND POTENTIAL

**Large parts of Guyana are covered by Younger Granites and other pegmatitic suites, which are favourable for lithium, tantalum and REE. Some of these pegmatite granites have displayed significant anomalies through stream sediment sampling and rock geochemical surveys. These include Groete Creek, Kopang, Waini, and Bemichi in the northern granite-greenstone belt, and Takutu East, Marudi-North, Bushawau, Dadanawa East, Dadanawa, Upper and Lower Rupununi and Muruwa, in the southern granite-greenstone terrane (Figure 3 & 4). Specific information on these occurrences and their geological associations can be obtained from the Geological Services Division of the GGMC. Moreover, Guyana's tropical climate and the presence of other metals, including scandium and rare earth elements (REE), in bauxite residues and other formations within the Barama-Mazaruni Greenstone Belt suggest the potential for clay-hosted lithium in the region.**

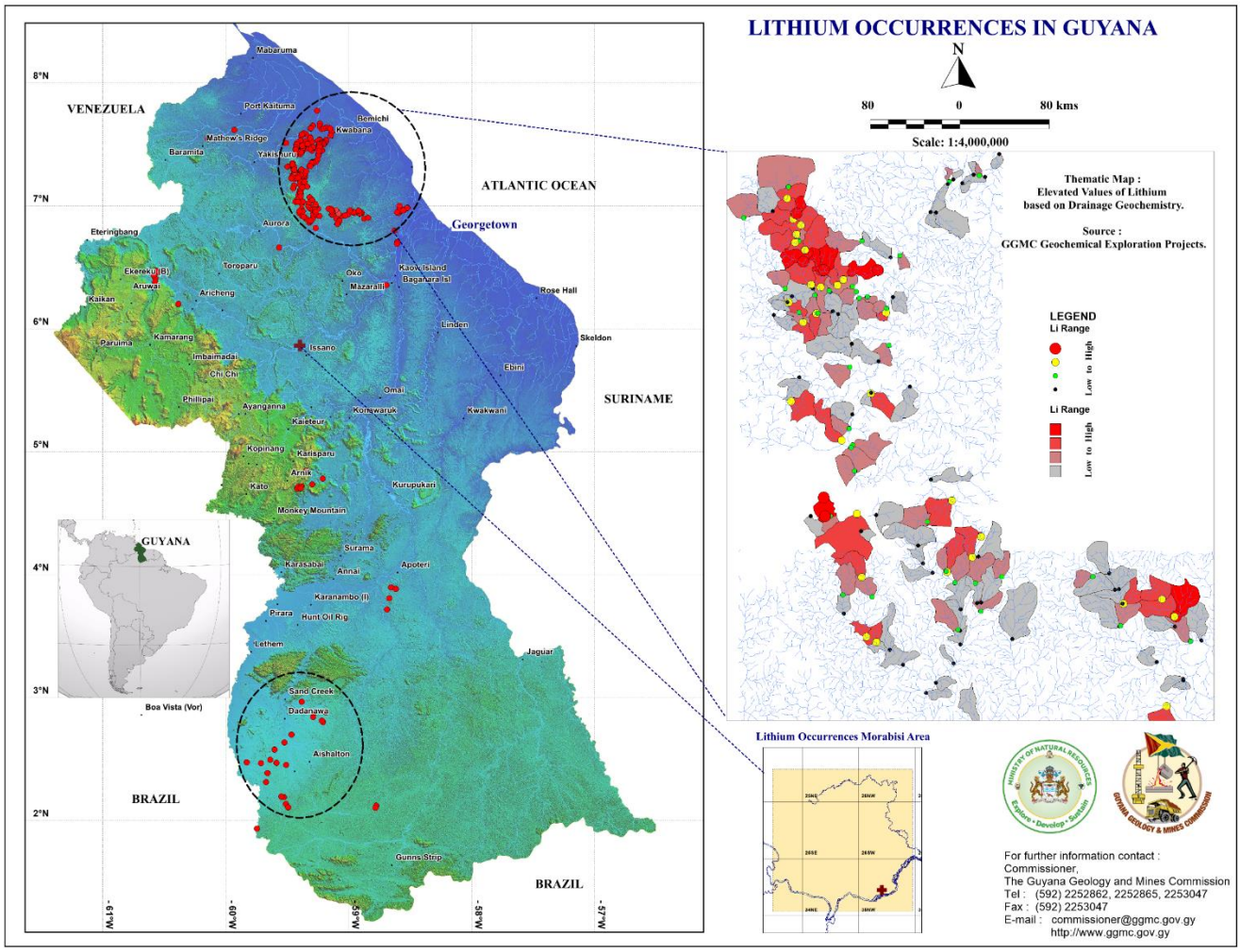


***Figure 3: Lithium Occurrences in Guyana***

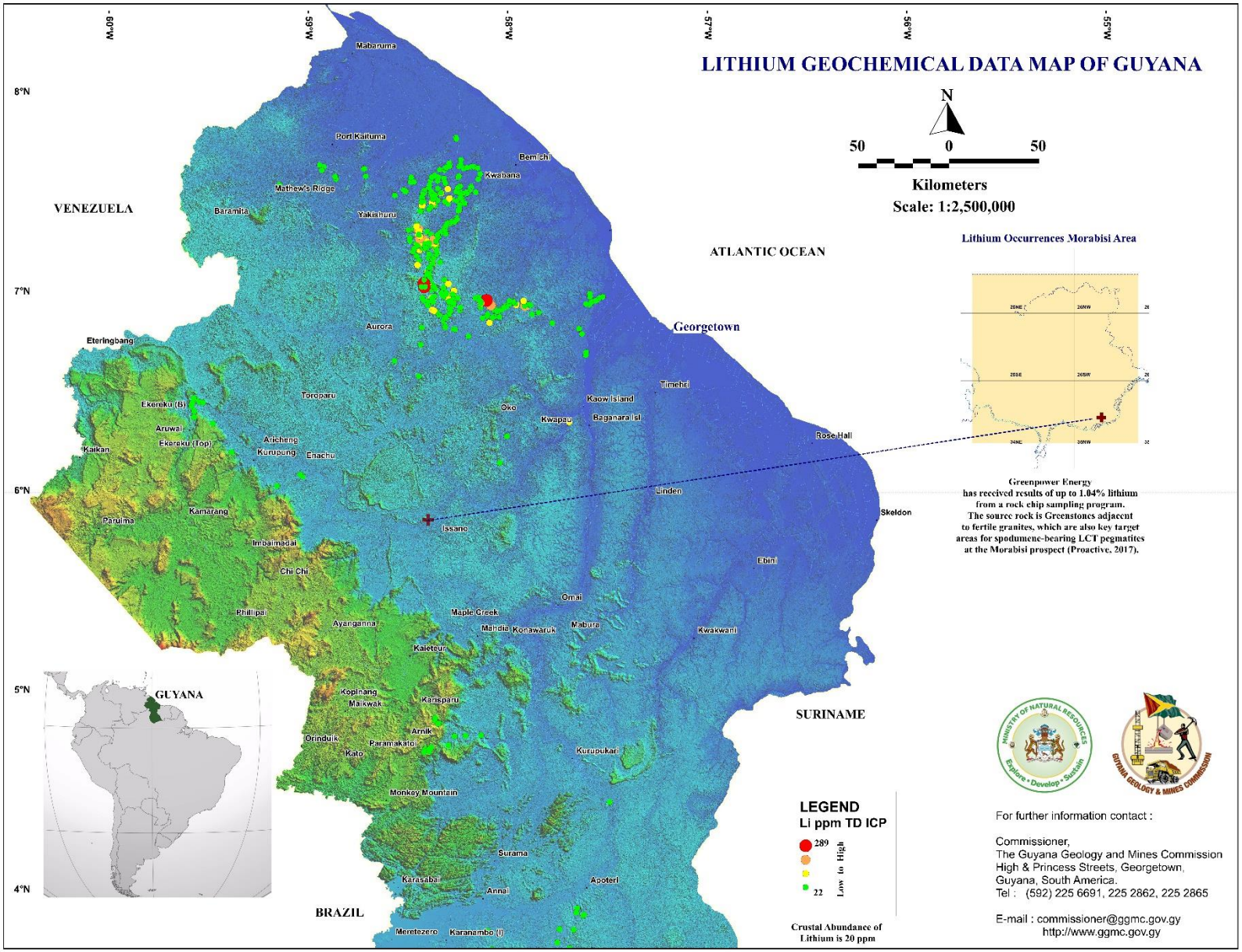


***Figure 4: Lithium Occurrences in Guyana***

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