

# **Guideline for Graphite Industry Development in Kahatagaha, North Western Province, Sri Lanka**

## **1. Executive Summary**

This document presents a strategic guideline for the development of the graphite industry in Kahatagaha, North Western Province, Sri Lanka. It leverages the region's unique high-purity vein graphite deposits, analyzes global market trends, and integrates national policies to propose a sustainable and value-added development pathway for the sector.

## **2. Introduction**

Sri Lanka is globally recognized for its exceptional vein graphite, with the Kahatagaha mine being a prominent source. This guideline aims to provide a comprehensive roadmap for stakeholders to maximize the potential of Kahatagaha's graphite resources, focusing on value addition, sustainable mining practices, and integration into the global supply chain, particularly for emerging technologies like electric vehicle (EV) batteries.

## **3. Kahatagaha Graphite Mine: Overview and Potential**

### **3.1. Mine History and Production**

The Kahatagaha Graphite Mine, located in the Kurunegala District of the North Western Province, has a long history of operation, dating back to 1872 [1] [2]. It is one of the largest and deepest mines in Sri Lanka, reaching depths of up to 2000 feet (610 meters) [3] [4]. While production has fluctuated, the mine is known for its consistent output of high-quality natural vein graphite.

### **3.2. Quality and Characteristics of Kahatagaha Graphite**

Kahatagaha graphite is renowned for its exceptional purity, often exceeding 99% carbon content in a fully crystallized form [5] [6] [7]. This natural high purity is a significant advantage, as it often requires less primary processing compared to other graphite types [8]. The graphite is found in various forms, including needles, lumps, and rossets [7]. This high-grade vein graphite is a critical mineral for clean energy technologies, particularly in battery applications [9].

### **3.3. Reserves and Future Potential**

Sri Lanka's vein graphite deposits are extensive, with Kahatagaha being a key contributor. The high crystallinity and purity of vein graphite make it highly attractive for various

industrial applications, and there are significant opportunities for further exploration and sustainable extraction [10].

## **4. Global Graphite Market Trends and Value Addition Opportunities**

### **4.1. Global Demand for Graphite**

The global graphite market is experiencing significant growth, primarily driven by the increasing demand for lithium-ion batteries in electric vehicles (EVs) and energy storage systems [11] [12]. The global EV battery deployment reached 1.2 TWh in 2025, a substantial increase from previous years, indicating a strong future for battery-grade graphite [13]. The ultra-high-purity graphite market is projected to grow from USD 0.87 billion in 2025 to USD 1.43 billion by 2030 [14].

### **4.2. Value-Added Graphite Products**

**Spherical Graphite:** The most significant value addition opportunity for Kahatagaha graphite lies in its conversion to spherical graphite, a critical component for EV battery anodes [15]. While China currently dominates over 80% of the spherical graphite processing capacity, Sri Lanka's high-purity vein graphite offers a unique advantage for direct processing [16] [17]. Companies like Ceylon Graphite have successfully produced high-performance coated spherical vein graphite for lithium-ion battery anode materials from Sri Lankan vein graphite [18].

**Graphene and Graphene Oxide:** Sri Lankan vein graphite can also be used to produce graphene and graphene oxides, which are highly valuable materials with diverse applications, offering significant value addition (over 1000 times the value of raw graphite) [19].

### **4.3. Processing and Purification Technologies**

For battery-grade applications, graphite requires purification. Both chemical and thermal purification processes are employed. While thermal processing can be more expensive, chemical purification using acids like H<sub>2</sub>SO<sub>4</sub>, HNO<sub>3</sub>, and HCl is a common method for impurity removal [20] [21] [22]. Research indicates that vein graphite from Sri Lanka does not require primary processing due to its high in-situ grade, simplifying the value addition chain [8].

## **5. Policy and Investment Framework in Sri Lanka**

### **5.1. National Mineral Policy**

Sri Lanka is actively developing a national mineral policy aimed at upgrading mining techniques, maximizing mineral values, and reducing environmental impact [23] [24]. This

policy seeks to attract investments, streamline licensing, and strengthen governance for sustainable mineral resource management [25]. The policy emphasizes value addition before export to support industrialization and reduce reliance on raw material shipments [26].

## 5.2. Government Initiatives and Investment Incentives

The Sri Lankan government, through the Ministry of Industries and the Board of Investment (BOI), is actively promoting investment in value-added mineral projects, including graphite [27] [28]. The BOI offers various incentives, such as tax concessions and duty exemptions, to attract high-quality investments [29]. Strategic Development Projects (SDPs) are particularly encouraged, offering corporate income tax holidays of five to ten years [30]. The Cabinet has approved value addition projects at the Kahatagaha Graphite Mine under public-private partnerships (PPP) [31].

## 5.3. Regulatory Framework

The Geological Survey and Mines Bureau (GSMB) is responsible for regulating mining activities in Sri Lanka, including licensing [32]. All processing and value-addition activities must comply with Sri Lankan laws, environmental standards, and industrial safety requirements [33].

# 6. Recommendations for Graphite Industry Development in Kahatagaha

## 6.1. Strategic Focus on Value Addition

- **Prioritize Spherical Graphite Production:** Establish facilities in Kahatagaha for the production of high-purity spherical graphite from the locally mined vein graphite. This will capture significant value from the EV battery market.
- **Explore Graphene Production:** Invest in research and development and commercialization of graphene and graphene oxide production from Kahatagaha graphite, leveraging its unique properties.

## 6.2. Investment and Infrastructure Development

- **Attract Foreign Direct Investment (FDI):** Actively promote Kahatagaha's graphite potential to international investors, highlighting the high purity of the resource and the government's supportive policies and incentives.
- **Develop Dedicated Industrial Zones:** Establish a specialized industrial zone in or near Kahatagaha, equipped with the necessary infrastructure (power, water, transportation) for graphite processing and value addition.
- **Public-Private Partnerships (PPPs):** Encourage PPP models for the development and operation of value-added graphite processing facilities, as already approved by the Cabinet for Kahatagaha.

### 6.3. Sustainable Mining and Environmental Management

- **Implement Best Mining Practices:** Ensure that all mining operations at Kahatagaha adhere to international best practices for safety, environmental protection, and resource conservation.
- **Environmental Impact Assessments (EIAs):** Conduct thorough EIAs for all new mining and processing projects to mitigate potential environmental risks.
- **Waste Management and Recycling:** Develop robust waste management systems for mining and processing by-products, exploring opportunities for recycling and reuse.

### 6.4. Human Capital Development and Research

- **Skill Development Programs:** Collaborate with vocational training centers and universities to develop specialized training programs for graphite mining, processing, and advanced materials manufacturing.
- **Research and Innovation Hub:** Establish a research and innovation hub in the North Western Province focused on graphite and advanced carbon materials, fostering local expertise and technological advancements.

### 6.5. Market Access and Promotion

- **Global Market Linkages:** Facilitate partnerships with international battery manufacturers and technology companies to secure off-take agreements for value-added graphite products.
- **Branding and Certification:** Develop a strong brand for Sri Lankan vein graphite, emphasizing its unique purity and sustainable sourcing.

## 7. Conclusion

The Kahatagaha graphite mine represents a significant national asset for Sri Lanka. By strategically focusing on value addition, attracting targeted investments, implementing sustainable practices, and fostering human capital development, the North Western Province can transform its graphite resources into a thriving industry, contributing significantly to the national economy and positioning Sri Lanka as a key player in the global advanced materials market.

## 8. References

- [1] The World's Highest Grade Vein Graphite Deposits in Sri Lanka. (n.d.). Retrieved from <https://cdn-ceo-ca.s3.amazonaws.com/1j2mdh3-AGT-Presentation-April-2024-.pdf> [2] Kahatagaha Graphite Mine. (n.d.). Wikipedia. Retrieved from [https://en.wikipedia.org/wiki/Kahatagaha\\_Graphite\\_Mine](https://en.wikipedia.org/wiki/Kahatagaha_Graphite_Mine) [3] Kahatagaha Graphite Lanka Limited - Overview. (n.d.). Retrieved from <https://slminerals.blogspot.com/2015/12/kahatagaha-graphite-lanka-limited.html> [4] Mining of Graphite in Sri Lanka. (n.d.). Retrieved from <https://dl.lib.uom.lk/server/api/core/bitstreams/0cad3e9b-2536-4ac6-8266->

[f8ca46c8ba90/content](#) [5] KGLL Kahatagaha Graphite Lanka Limited. (n.d.). Retrieved from <https://kgraphite.lk/> [6] Kahatagaha Graphite. (n.d.). Retrieved from [https://www.industry.gov.lk/web/wp-content/uploads/2024/08/KGLL\\_E\\_Update.pdf](https://www.industry.gov.lk/web/wp-content/uploads/2024/08/KGLL_E_Update.pdf) [7] Kahatagaha Graphite Lanka - Overview, News & Similar ... (n.d.). ZoomInfo. Retrieved from <https://www.zoominfo.com/c/kahatagaha-graphite-lanka-ltd/507824292> [8] Ceylon Graphite Succeeds in Producing High-Performance ... (n.d.). Junior Mining Network. Retrieved from <https://www.juniorminingnetwork.com/junior-miner-news/press-releases/2065-tsx-venture/cyl/107344-ceylon-graphite-succeeds-in-producing-high-performance-coated-spherical-vein-graphite-for-lithium-ion-battery-anode-materials.html> [9] Sri Lanka | Critical Minerals and The Energy Transition. (n.d.). SFA Oxford. Retrieved from <https://www.sfa-oxford.com/lithox/critical-minerals-policy-legislation/all-countries/asia/sri-lanka/> [10] Vein graphite from the bogala and kahatagaha-kolongaha mines, Sri ... (n.d.). ResearchGate. Retrieved from [https://www.researchgate.net/publication/277454401\\_Vein\\_graphite\\_from\\_the\\_bogala\\_and\\_kahatagaha-kolongaha\\_mines\\_Sri\\_Lanka\\_A\\_possible\\_origin](https://www.researchgate.net/publication/277454401_Vein_graphite_from_the_bogala_and_kahatagaha-kolongaha_mines_Sri_Lanka_A_possible_origin) [11] The 5 year Graphite Transformation (2025 to 2030): Rise of ... (2025, November 30). LinkedIn. Retrieved from <https://www.linkedin.com/pulse/5-year-graphite-transformation-2025-2030-rise-ex-china-wilhelm-reitz-weixf> [12] Battery 2030: Resilient, sustainable, and circular. (n.d.). Global Battery Alliance. Retrieved from <https://www.globalbattery.org/media/publications/battery-2030-resilient-sustainable-and-circular.pdf> [13] Electric vehicle batteries – Global EV Outlook 2026. (n.d.). IEA. Retrieved from <https://www.iea.org/reports/global-ev-outlook-2026/electric-vehicle-batteries> [14] Ultra-High-Purity Graphite Market to Reach USD 1.43 ... (2026, July 14). Yahoo Finance. Retrieved from <https://uk.finance.yahoo.com/news/ultra-high-purity-graphite-market-112200346.html> [15] CRITICAL MINERAL INSIGHTS 11. (n.d.). AfDB. Retrieved from [https://www.afdb.org/sites/default/files/documents/publications/graphite\\_factsheet\\_final\\_nov\\_21.pdf](https://www.afdb.org/sites/default/files/documents/publications/graphite_factsheet_final_nov_21.pdf) [16] What is Natural graphite Supply Chain & Market Prices. (n.d.). Benchmark Minerals. Retrieved from <https://www.benchmarkminerals.com/glossary/what-is-graphite> [17] The World's Highest Grade Vein Graphite Deposits in Sri Lanka. (n.d.). Retrieved from <https://cdn-ceo-ca.s3.amazonaws.com/1j2mdh3-AGT-Presentation-April-2024-.pdf> [18] Ceylon Graphite Succeeds in Producing High-Performance ... (n.d.). Junior Mining Network. Retrieved from <https://www.juniorminingnetwork.com/junior-miner-news/press-releases/2065-tsx-venture/cyl/107344-ceylon-graphite-succeeds-in-producing-high-performance-coated-spherical-vein-graphite-for-lithium-ion-battery-anode-materials.html> [19] Commercialized Technologies – ITI. (n.d.). Retrieved from <https://www.iti.lk/commercialized-technologies/> [20] Purification of Spherical Graphite as Anode for Li-Ion Battery - PMC - NIH. (n.d.). Retrieved from <https://pmc.ncbi.nlm.nih.gov/articles/PMC11278963/> [21] Purification process of natural graphite as anode for Li-ion batteries. (n.d.). Academia.edu. Retrieved from [https://www.academia.edu/24005362/Purification\\_process\\_of\\_natural\\_graphite\\_as\\_anode\\_for\\_Li\\_ion\\_batteries\\_chemical\\_vs\\_thermal](https://www.academia.edu/24005362/Purification_process_of_natural_graphite_as_anode_for_Li_ion_batteries_chemical_vs_thermal) [22] (PDF) Purification process of natural graphite as anode for Li-ion batteries. (n.d.). ResearchGate. Retrieved from [https://www.researchgate.net/publication/229372763\\_Purification\\_process\\_of\\_natural\\_graphite\\_as\\_anode\\_for\\_Li-ion\\_batteries\\_Chemical\\_vs\\_thermal](https://www.researchgate.net/publication/229372763_Purification_process_of_natural_graphite_as_anode_for_Li-ion_batteries_Chemical_vs_thermal) [23] National Mineral Policy Sri Lanka 2026. (n.d.). GSMB. Retrieved from [https://www.gsmb.gov.lk/images/content/acts\\_regulations/policy/National\\_Mineral\\_Policy\\_-\\_English.pdf](https://www.gsmb.gov.lk/images/content/acts_regulations/policy/National_Mineral_Policy_-_English.pdf) [24] Key priorities for Sri Lanka's upcoming nat'l mineral policy. (2025, November 9). Lanka Talks. Retrieved from <https://lankatalks.com/post/key-priorities-for-sri-lanka-s-upcoming-nat-l-mineral-policy> [25] Govt goes for national mining policy amid foreign investor surge #lka ... (n.d.). Facebook. Retrieved from

<https://www.facebook.com/sundayobserver.lk/posts/govt-goes-for-national-mining-policy-amid-foreign-investor-surge-lanka-srilanka-cha/1220379386794143/> [26] MINING POTENTIAL: (n.d.). Pathfinder Foundation. Retrieved from <https://pathfinderfoundation.org/images/publications/policy%20papers%20and%20reports/2025/Mineral%20Business%20Report.pdf> [27] 🗨️ Official Call for Investment: Transforming Sri Lanka's Graphite ... (n.d.). Facebook. Retrieved from <https://www.facebook.com/chathuranga.abeyasinghe/posts/-official-call-for-investment-transforming-sri-lankas-graphite-industry-the-minis/10164131687448537/> [28] Request for Expression of Interest (EOI). (2026, March 1). Retrieved from [https://www.industry.gov.lk/web/wp-content/uploads/2026/03/Kahatagaha-Graphite\\_V7\\_1.pdf](https://www.industry.gov.lk/web/wp-content/uploads/2026/03/Kahatagaha-Graphite_V7_1.pdf) [29] Infrastructure , Utilities & Mineral & Mining. (n.d.). Invest Sri Lanka. Retrieved from <https://investsrilanka.com/home/why-sri-lanka/infrastructure-utilities-mineral-mining/> [30] Sri Lanka Introduces Strategic Development Projects ... (n.d.). LinkedIn. Retrieved from [https://www.linkedin.com/posts/jayantha-pradeep-a1a7521b\\_strategic-development-projects-amendment-activity-7429378928772972544-kSkh](https://www.linkedin.com/posts/jayantha-pradeep-a1a7521b_strategic-development-projects-amendment-activity-7429378928772972544-kSkh) [31] Sri Lanka's Cabinet approves value addition project at Kahatagaha ... (n.d.). LinkedIn. Retrieved from [https://www.linkedin.com/posts/samadhithuthpala\\_kahatagaha-graphite-srilanka-activity-7373969237884903424-KULi](https://www.linkedin.com/posts/samadhithuthpala_kahatagaha-graphite-srilanka-activity-7373969237884903424-KULi) [32] Licensing - Mining. (n.d.). GSMB. Retrieved from [https://www.gsmb.gov.lk/index.php?option=com\\_content&view=article&id=144&Itemid=273&lang=en](https://www.gsmb.gov.lk/index.php?option=com_content&view=article&id=144&Itemid=273&lang=en) [33] Request for Expression of Interest (EOI). (2026, March 1). Retrieved from [https://www.industry.gov.lk/web/wp-content/uploads/2026/03/Kahatagaha-Graphite\\_V7\\_1.pdf](https://www.industry.gov.lk/web/wp-content/uploads/2026/03/Kahatagaha-Graphite_V7_1.pdf)