

Sri Lanka's Black Sand: Mirage or Rainbow?

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Titanium is the ninth most available and abundant element in the earth's crust where approximately 0.6% is comprised it. Titanium ores are commonly found in nature mainly as rutile (95% TiO₂) and ilmenite (53% TiO₂) which are important economic minerals. The value added products of Ti ores are pigment grade TiO₂, ferro-titanium and Ti metal. TiO₂ is a prime commodity, used primarily in the pigment industry while Ti metal is commonly used in many industries such as aerospace, medical and automobile due to its light mass, high strength, corrosion resistance, biocompatibility and high thermal resistivity. The landscape of the TiO₂ market is quite competitive and is heading towards consolidation and upstream vertical integration with top players such as DuPont, Tronox and CRISTAL acquiring other firms, seeking to secure feedstock supplies (TZ Minerals International, 2017). The mineral sands industry has been dominated by two major multinationals and that will continue for the medium-term.

Sri Lanka has large deposits of mineral sands scattered around the east coastline of the country and in Puttalam. The North-Eastern coastal line of Sri Lanka consists of approximately of 8 - 9 million tons of ilmenite, 1 million tons of rutile with a heavy metal content of 60 – 80 %. The main player in the Sri Lankan mining space is Lanka Mineral Sands Ltd, which is a fully owned government company. Governed under the Ministry of State Resources and Enterprise Development, the functions of the company are to mine, upgrade and export Sri Lanka's heavy mineral beach sands and primarily ilmenite, rutile and zircon are mined. Currently, Sri Lanka produces approximately 90,000 tons of Ilmenite, 9,000 tons of rutile and 5,500 tons of zircon annually ("Lanka Mineral Sands," 2017). As of 2016 records, Lanka Mineral Sands generated US\$ 13,261,641 of foreign revenue from the sale of ilmenite, rutile and zircon to overseas parties.

Unfortunately, despite having several key deposits Sri Lanka is still behind in terms of adding value to the black sand. Value addition is further hampered due to an unsupportive political environment and local infrastructure towards manufacturing. Therefore, with focused scientific attention and careful economic planning much needed foreign exchange could be brought back to the country by exploiting long neglected treasure of black sand.

Sri Lanka's black sand is NOT a mirage!!!

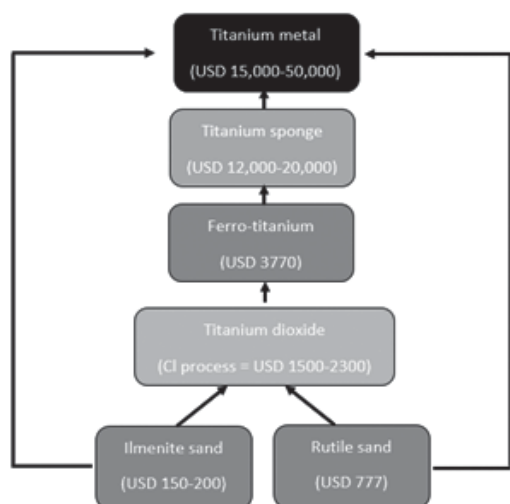


Figure1: Price of value-added products along the value chain for mineral sands. (All prices per MT are sourced from Alibaba.com and are subject to fluctuation)

References

1. TZ Minerals International. (2017). TiO₂ Market Insight. Burswood
2. Lanka Mineral Sands. (2017). Retrieved October 23, 2017, from <http://www.lankamineralsands.com/>



Professor Kottegoda obtained her Bachelor's Degree in Chemistry from the University of Peradeniya and her Ph.D. in Material Chemistry from the University of Cambridge, UK. She is a Professor in Chemistry and is currently the Head of the Department of Chemistry at the University of Sri Jayewardenepura. She has contributed significantly in the field of smart agriculture through her groundbreaking innovation "Nano-urea fertilizer" which was seen to improve the efficacy of the current global agricultural output and was a means of adding value to commercially important natural minerals. Her pioneering research work on Nano-urea fertilizer has been highlighted as the "Global First" and the innovation has been awarded three US patents which were extended to six other countries.