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# SIERRA RUTILE REVIEW

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2016



**ILUKA**



## COMPANY OVERVIEW

### WHO WE ARE

Sierra Rutile is a leading mineral sands company, operating world-class assets in Sierra Leone. It is a multi-mine operation with one of the largest rutile deposits in the world. The company produces high grade rutile and titanium dioxide minerals, ilmenite and a smaller quantity of zircon in concentrate.

Sierra Rutile has a long operating history and plays a major role in the national and regional economies, accounting for approximately 2.4 per cent of Sierra Leone's total GDP.<sup>1</sup> With a workforce of more than 1,600 personnel (over 95 per cent of which is Sierra Leonean), the company is one of the largest private sector employers in Sierra Leone.

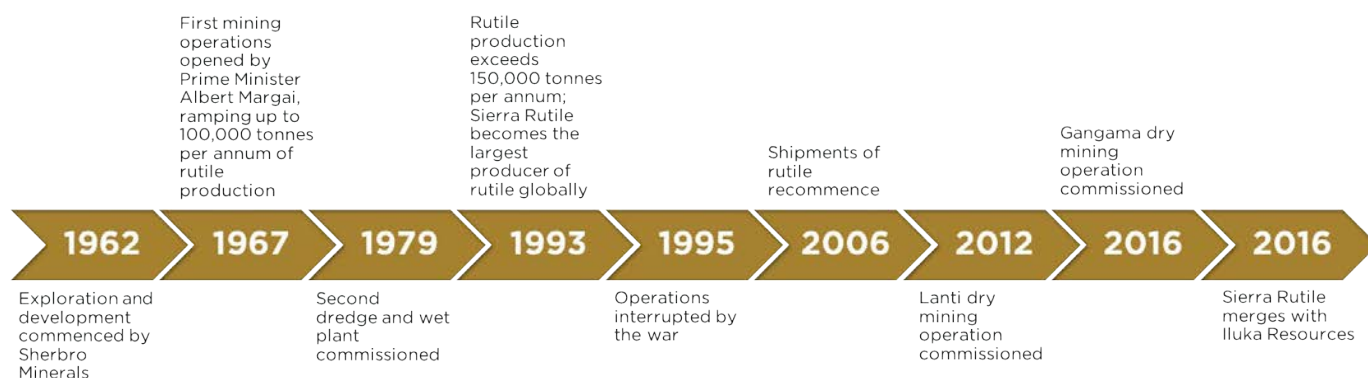
Sierra Rutile is committed to being a sustainable corporate citizen. In practice, this means proactive consideration for all environmental, social and economic implications prior to, throughout and following the closure of operations.

Sierra Rutile is a wholly owned subsidiary of Iluka Resources.

### WHAT WE DO

The Sierra Rutile operation consists of one dredge (Lanti Dredge) and two dry mining operations (Lanti Dry Mine and Gangama Dry Mine). The operations feed into one central processing unit where a mineral separation plant separates the heavy mineral concentrate into several distinct rutile products and by-products. Sierra Rutile's operation is completely self-sufficient with a dedicated port facility as well as other supporting infrastructure including a power plant, health clinic and residential camp. At 95% TiO<sub>2</sub> the rutile is one of the highest quality titanium products in the world.

<sup>1</sup>GDP in 2015 was USD 4.4 billion; SRL revenue was USD 106 million.



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## CEO MESSAGE

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*“2016 was a transformational year in Sierra Rutile’s history, with significant milestones in the successful commissioning of the Gangama Dry Mine and the company’s merger with Iluka Resources.”*

### KEY FEATURES OF 2016

#### *Gangama Dry Mine successfully commissioned*

The Gangama Dry Mine is the company’s second major expansion project, which was delivered on time and on budget in 2016. Construction of Gangama Dry Mine commenced in April 2015 and during commissioning in May 2016 it was confirmed that feed rates and plant utilisation had met the design criteria, which resulted in 500 tph throughput being added to Sierra Rutile.

#### *Sierra Rutile merger with Iluka Resources*

On 7 December 2016 Sierra Rutile merged with Iluka Resources, marking the beginning of a new and exciting phase of growth and development for both companies. The skills and experience of Sierra Rutile personnel, combined with Iluka’s operational and technical expertise, are expected to enhance the operational performance of Sierra Rutile.

Iluka expects to invest at least US\$60 million over the next two years on improvements to the Sierra Rutile operation and plans to progress a number of expansion opportunities available to the company. This investment in Sierra Rutile serves not only to strengthen the company’s position as a leading global rutile producer, but provides growth opportunities for employees, and benefits the community, regional and national economies.

Further information on Iluka Resources and the merger is on page 7.

#### *Sustainability*

Sierra Rutile and Iluka are committed to high levels of performance on all aspects relating to health, safety, environment and community. Integration priorities following the merger include the introduction of Iluka’s safety and risk mitigation frameworks, as well as its Code of Conduct, to ensure alignment and integration of group level procedures and processes.

In 2016 Sierra Rutile recorded a lost time injury frequency rate of 0.11, an improvement from 0.14 recorded in 2015. This rate is calculated per 200,000 man hours. Injury reporting systems and practices are currently being reviewed for alignment with Iluka’s safety and risk frameworks.



### 2017 Focus Areas

In 2017 Sierra Rutile will continue to focus on integration activities, including safety and operational improvement measures, and the alignment with group level processes and procedures. The company will also commence detailed feasibility studies for a number of expansion opportunities, including at Lanti and Gangama Dry Mines and the Sembehun deposits, which will be progressed subject to market conditions and Board approval.

We will focus on the training, growth and development of Sierra Leonean employees, including mechanisms to effect skills transfer and opportunities to gain experience from Iluka's global operations.

Sierra Rutile will continue building positive, mutually beneficial relationships with the Government of the Republic of Sierra Leone and its main agencies, with regional and community representatives and other key bodies within the country. Iluka has a zero tolerance policy regarding bribery and corruption, and is pleased to see the Government of Sierra Leone's firm stance on corruption within the country. The company engages proactively with key stakeholders and continues to support sustainable infrastructure projects with an emphasis on healthcare, education and agriculture.

Sierra Rutile has a proud history in Sierra Leone and I am delighted to join the Sierra Rutile team. As Sierra Rutile enters the next phase of evolution, its employees remain the company's most important asset and I thank them for their hard work over the past year. By continuing to focus on the principles of safety, team work, respect, employing local people and fostering community relationships, we will work together to improve the future.

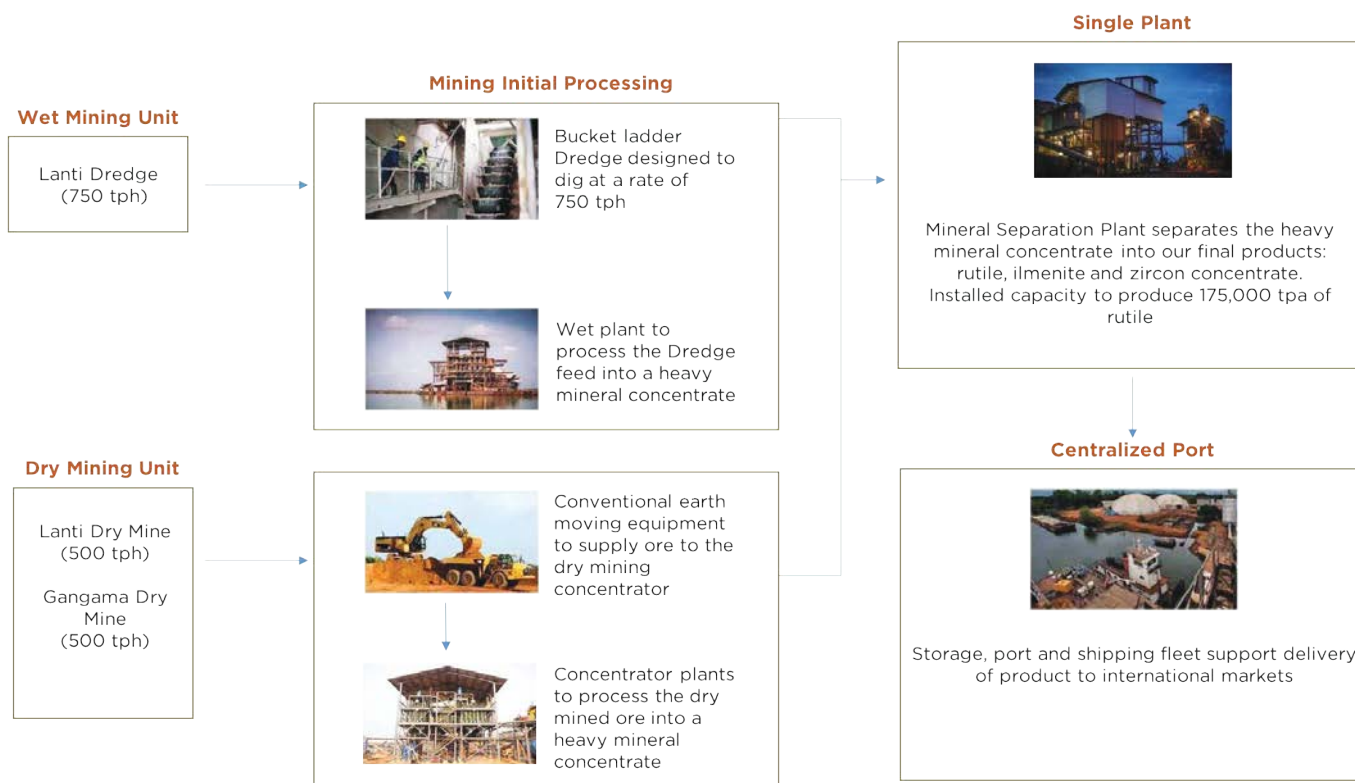
### Rob Hattingh

Chief Executive Officer



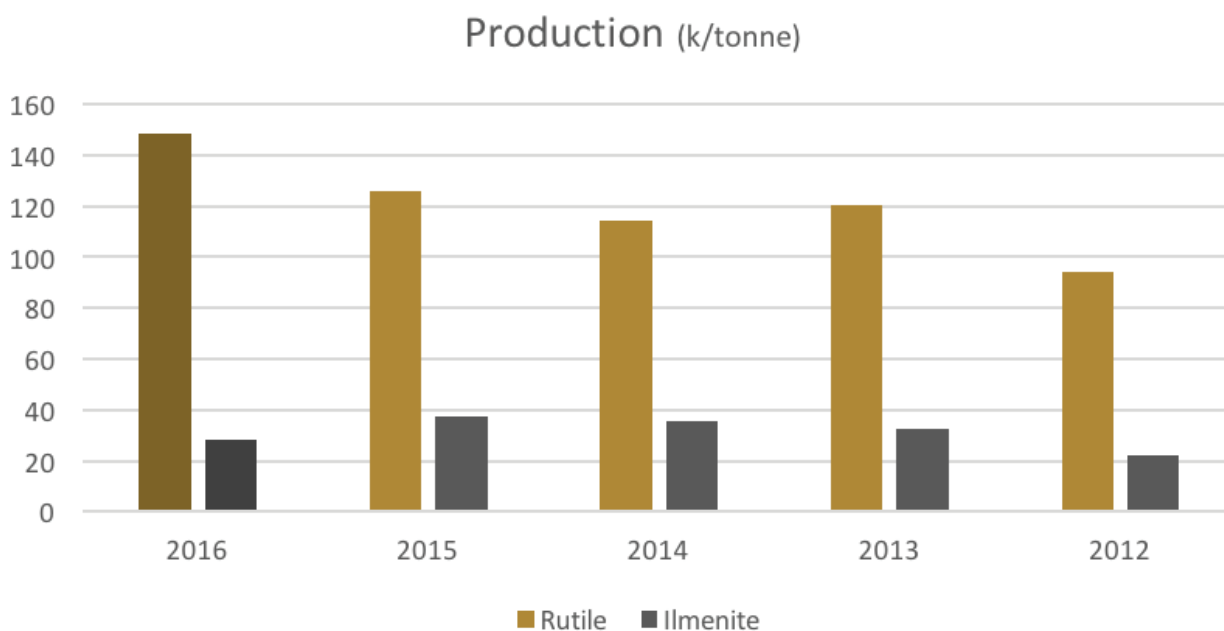
## OPERATIONS PERFORMANCE

### OVERVIEW



### OPERATIONAL HIGHLIGHTS

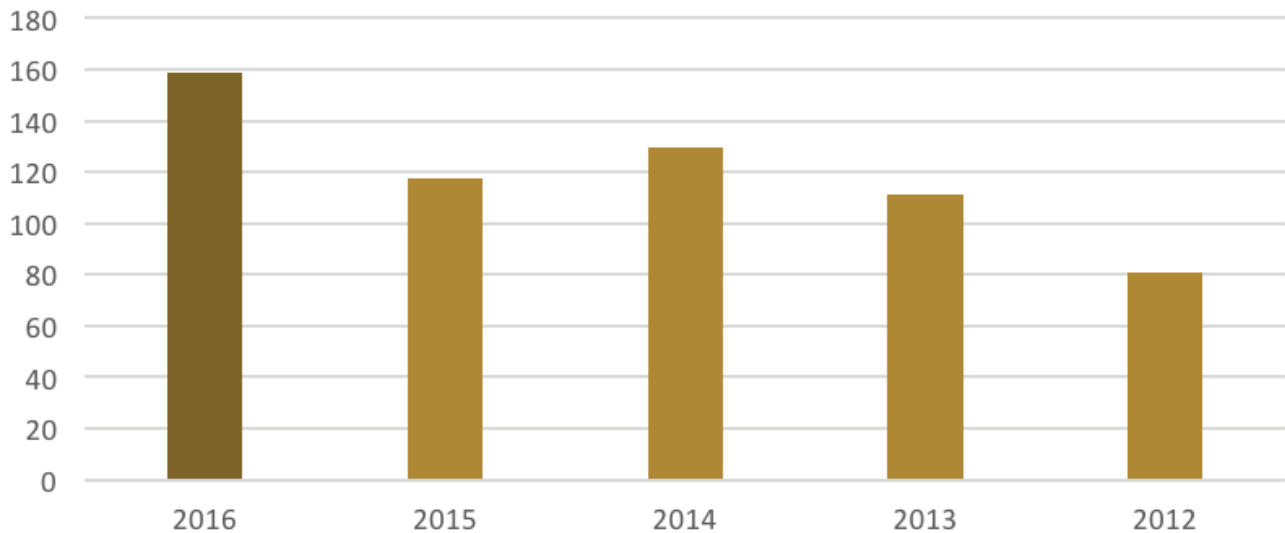
Sierra Rutile reached a major production milestone in 2016, with the company producing 148,541 tonnes of rutile.



## SALES HIGHLIGHTS

Buoyed by improving  $\text{TiO}_2$  pigment production, rutile sales volume hit a record 159,000 tonnes in 2016. Weaker demand for lower grade  $\text{TiO}_2$  feedstock resulted in ilmenite sales of 29,000 tonnes, a 24% decrease from the previous year.

Rutile Sales (k/tonne)



## RESOURCE BASE

Sierra Rutile produces high quality rutile, ilmenite and zircon from one of the world's largest natural rutile deposits. The company's resource information can be found in the Iluka review 2016 on the Iluka website [www.iluka.com](http://www.iluka.com)





## ILUKA RESOURCES

### ABOUT ILUKA RESOURCES



Iluka Resources (Iluka), is a major global producer of zircon and high grade titanium dioxide products with over 60 years' experience in mineral sands exploration, project development, operations, marketing and rehabilitation. Iluka is listed on the Australian Securities Exchange, with a market capitalisation of approximately A\$2.7 billion. It is headquartered in Perth, Western Australia. Through its sales and marketing network, the company supplies over 50 products to more than 250 direct customers, with sales in more than 40 countries.

Iluka has operations in Australia in the Murray Basin (Victoria), Eucla Basin (South Australia), Perth Basin (Western Australia) and Sierra Leone. Iluka's Virginia operations were closed, with a move to rehabilitation status in January 2017.

Iluka is committed to high standards of health, safety and environmental performance and has significant experience in the rehabilitation of areas disturbed by mining. Iluka respects human rights, engages meaningfully with stakeholders and seeks to make a positive difference to the social and economic development of the areas in which it operates.

The company has an established record for land rehabilitation over several decades and this is a major focus of its environmental management activities. Iluka's on-site rehabilitation work is complemented by its environmental research partnerships with the University of Western Australia, the University of Adelaide and the Virginia Polytechnic Institute.

Further information on Iluka can be found on the company's website [www.iluka.com](http://www.iluka.com)

#### *Together improving our future*

Sierra Rutile is a large, long life rutile operation with material expansion options. The Sierra Rutile operation allows Iluka to continue servicing the high grade titanium dioxide feedstock market and complements its zircon market position.



*"THE COMBINATION OF THE EXPERIENCE AND SKILLS OF SIERRA RUTILE EMPLOYEES WITH ILUKA'S OPERATIONAL AND TECHNICAL EXPERIENCE, WILL ENHANCE THE COMPANY'S OPERATIONAL PERFORMANCE."*



The integration priorities include engagement with Sierra Rutile employees and other key stakeholders to ensure the continuity of operations and the introduction of Iluka's safety and risk mitigation frameworks to ensure alignment and integration of group level procedures and processes.



Iluka expects to spend at least US\$60 million over the next two years on operational and safety performance improvement measures, including:

- a revised mining method to reduce haulage, stockpiling and reclaim involving in-pit mining units and slurry pump to the wet concentrator plant;
- a revised beneficiation plant design for current and future mines, de-constraining throughput and improving recovery;
- the improvement of mine pit de-watering to access lower ore zones, improve tailings management and enable earlier tails backfill (as opposed to the use of tailings storage facilities) whilst minimising environmental impact; and
- higher mineral separation plant throughputs and recoveries through equipment upgrades.

The company will also evaluate development options through the commencement of definitive feasibility studies. Subject to these evaluations and market conditions, Iluka plans to commit progressively to expansion opportunities. These include:

- Lanti dry mining - Iluka is considering an expansion of 500 tph. This expansion would partially offset the planned decommissioning of the Lanti dredge operation;
- Gangama dry mining - Iluka is considering an expansion of 500 tph;
- Sembehun mining - development of a new group of deposits with approximately 1,000 tph throughput;
- expansion of the mineral separation plant from the current approximately 175 thousand tonnes per year rutile capacity to 250 thousand tonnes per year; and
- enhancement of infrastructure, notably Nitti Port, to accommodate increased production.

It is estimated the Lanti and Gangama expansions would increase annual rutile production to 160-175 thousand tonnes per annum. With the Sembehun expansion, production may exceed 250 thousand tonnes per annum.

## SUSTAINABILITY

Sierra Rutile is committed to being a sustainable corporate citizen. In practice, this means proactive consideration of all environmental, social and economic implications prior to, throughout and following the closure of operations.

### HEALTH AND SAFETY

Sierra Rutile is committed to achieving a fatality free workplace, eliminating injuries and protecting the health and wellbeing of its people.

*Key health and safety indicators*

	2016	2015	2014	2013	2012
Fatalities	0	1	1	1	0
Lost Time Injuries	4	4	5	0	4

The Lost Time Injury Frequency Rate (“LTIFR”) for 2016 was 0.11, an improvement from the 0.14 recorded in 2015. This rate is calculated per 200,000 man hours. Injury reporting systems and practices are currently being reviewed for alignment with Iluka’s safety and risk frameworks. Once systems are fully integrated historical data may not be directly comparable to future performance due to a difference in reporting standards.

Sierra Rutile continues to focus on identifying, minimising and mitigating key occupational health and safety risks, through safety awareness, training and ensuring its workforce has the skills to do their duties safely.

The Sierra Rutile clinic is equipped to handle a wide range of health tests and collaborates with specialist physicians to provide routine screening of diseases to its workforce treatments. Sierra Rutile promotes the fundamentals of fitness for work and has a number of initiatives and toolbox talks to enhance health awareness among the workforce.

In 2016 there was a monthly average of 1,779 visitors to the clinic. Malaria and typhoid constituted 4,194 and 2,004 respectively of cases treated. Sierra Rutile continued its successful partnership with NGOs, the Mine Workers Union and the National AIDS Secretariat of Sierra Leone to address the prevention of HIV/AIDS.

### COMMUNITY ENGAGEMENT AND DEVELOPMENT

Sierra Rutile made a contribution of \$25,000 to the Jackson and Devon Anderson (JADA) Technical and Vocational Institute. JADA provides technical and engineering courses to improve the long-term employment prospects for young men and women living in and around the mining communities and promote local skilled labour. Courses are offered at the diploma and certificate level in civil, electrical, mechanical, automobile engineering, and information technology and business studies.

The company also made a contribution of \$16,000 to Ruby Rose Educational Resource Centre, who provide library facilities and adult education for the mining communities.

### THE SIERRA RUTILE FOUNDATION

The Sierra Rutile Foundation was established in 2006 to finance sustainable community development initiatives in the areas surrounding the company’s operations. The Foundation is managed by an independent board of trustees.

In 2016 Sierra Rutile contributed \$125,000 to the Sierra Rutile Foundation (2015: \$75,000), supporting sustainability infrastructure projects with an emphasis on healthcare, education and agriculture.



Initiatives progressed in 2016 include the following.

### Healthcare

- Clean water supply to the communities surrounding the mining operations.
- Construction of three hand pump wells within three communities; Kpatema in Lower Banta Chiefdom and Gangama and Semabu in Imperi Chiefdom.



- Implementation of the dust suppression program by road watering.
- Rehabilitation and maintenance of key community road networks within the mining concession.
- Donation of building materials to different institutions within the Group's operational areas.

### Education

- Construction of a six-classroom primary school in Vaama Village, Upper Banta Chiefdom.
- Fabrication of furniture for Bamba Primary School, Lower Banta Chiefdom

## PEOPLE

Sierra Rutile seeks to recruit, develop and retain a high performing, diverse workforce who share its values and are committed to achieving the company's objectives.

The company recognizes the government's local content policy and employs local people and suppliers as much as possible. More than 95% of Sierra Rutile's workforce are Sierra Leonean nationals who benefit from professional development and training. In 2016 the company conducted a series of internal and external training courses across management, technical and safety courses and workshops. The company also completed its first high potential program aimed at the further development of high potential individuals, which was interrupted by the ebola epidemic in 2014/2015.

## ENVIRONMENT

In 2016 Sierra Rutile successfully rehabilitated 142 ha of disturbed sand tails in the mined-out Pejebu North deposit, which involved filling sand tailings and borrow pits.

The land rehabilitation project collaborates with the School of Forestry and Horticulture of Njala University and MIRO Forestry (an international agricultural company) for technical input, and also draws labour directly from local communities.

The company also successfully exceeded its 2016 fish stocking target of 250,000 by stocking around 327,960 fish into lakes including tilapia, catfish and nine different native fish species.

## SUSTAINABILITY REPORTING

To advance Iluka's sustainability framework and support both the current operating profile and provide a foundation for growth opportunities, Iluka has undertaken to progressively align the company's sustainability practices with the International Council on Mining and Metals (ICMM) Framework for Sustainable Development.

Iluka will prepare a sustainability report for 2016 in accordance with the Global Reporting Initiative framework. The 2016 Sustainability Report will be published in April 2017 on the company's website [www.iluka.com](http://www.iluka.com)



**ILUKA**