

# Tsodilo Resources Continues Its Collaboration with Botswana International University of Science and Technology

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Toronto, December 1, 2025 - [Tsodilo Resources Ltd.](#) (TSXV: TSD) (OTCQB: TSDRF) (FSE: TZO) ("Tsodilo" or the "Company") is pleased to provide an update on its wholly owned Xaudum Iron Project (XIF) and announce that the Company is continuing its research collaboration with the Department of Chemical, Materials and Metallurgical Engineering at the Botswana International University of Science and Technology (BIUST).

## The BIUST Pig Iron Production Project

In 2024, Dr. R.V.S. Prasad and Mr. Thapelo Shomana of the Department of Chemical, Materials and Metallurgical Engineering at BIUST, were awarded a research grant to continue their research in exploring the high value utilization of Botswana iron ore, limestone, dolomite, and coals. The grant was awarded by Botswana Digital and Innovation Hub (BDIH) through Botswana Innovation Fund (BIF).

This project intends to apply a novel metallurgical coke blend in pig-iron making, by utilizing it in an experimental blast furnace by reduction of iron ores that are available in Botswana. Additionally, fluxing agents such as limestone and dolomite are going to be used in this research project and will be sourced locally in order to explore the technical feasibility to base this process on local resources.

Tsodilo provided BIUST with eighteen meters of XIF hole no. L9600-11V-250, containing an average Fe magnetite content of 45% for testing. The ore will be extensively characterized to aid in:

1. Furnace design
2. Furnace operations
3. Possible blending opportunities

Further to this, bulk sampling will follow for two tons of each target sample. An oven and experimental blast furnace will be designed and constructed in BIUST to produce metallurgical coke and pig iron, respectively using these bulk samples as inputs. Moreover, product optimization will follow by systematically changing the operation parameters and continuously testing the product quality.

The project will enhance Botswana's knowledge value with the utilization of specified natural resources that are of high abundance in the country, especially coal and iron ore. The knowledge obtained will advise resource owners on the proven technical possibilities to take the next step in the production of final products that will increase the country's export value in order to reduce the import bill.

The study's authors believe "that Botswana's true sustainable wealth rests in its ability to transform its natural resources into high value finished products that can be competitively exported, thereby securing a healthy trade balance. The primary product of the target in this project is pig iron, from which steel will be produced, using a Basic Oxygen Furnace (BOF) or Electric Arc Furnace (EAF). Further, the list of final products from steel billets is endless, varying from household, construction, mining, and engineering products".

There is currently underway a fundamental shift within the steel industry with steel producers under pressure to reduce their carbon footprint and produce steel with lower carbon emissions. Carbon emissions (CO2) account for around 80% of greenhouse gas emissions (GHG), where the steel making market contributes roughly 11% of global CO2 emissions. Major corporations including steel producers are focusing on

decarbonizing as they target carbon neutrality (Fan and Friedmann, 2021). Climate change issues globally and smog lowering related steel mill curbs on sintering and coal usage in China in particular have focused investors towards projects with higher-grade iron content driving the change that is occurring in the type of iron ore consumed by steel mills from lower-grade energy intensive fines that require sintering towards higher-grade ores and steel making products such as pellet feed and DRI materials.

Blast furnaces -- basic oxygen furnaces (BF-BOF) dominate production but are particularly stubborn to decarbonization technology. Direct reduced iron to electric arc furnace (DRI-EAF) production is growing and has far better decarbonization potential. Emission controls and demand for less carbon intensive steel production will become the norm and steel producers' demands for DR quality pellet feed will continue to increase. This shift represents significant opportunities for high-grade magnetite projects like the XIF project.

The Company's Metallurgical results show that the XIF magnetite product is expected to be a premium high-grade product containing +67% iron magnetite that will be ideal pellet feed material (See, Tsodilo Resources Ltd. - News Releases - Exciting Metallurgical Results Confirm Premium Grade Magnetite Product Potential for the Xaudum Iron Ore Project). This quality grade will place the XIF in the top 4-5% of producers in the world by Fe grade. High-grade magnetite pellet feeds at +67% Fe and above have been shown to lower GHG emissions compared to standard feed of 62% iron hematite fines (Herbertson and Strezov, 2011). The collaboration study with BIUST will identify if the XIF magnetite can be further beneficiated to a pellet feed and upgraded to a DRI pellet or similar product using Botswana coal as the reductant. Morupule Coal Mine (MCM) coal has proven to be a viable substitute for reductants in metalliferous ores processing, hence the confidence that it can be viable in the DRI process. This DRI product can then be utilized to produce steel in electric arc furnaces in Botswana, the region, and international markets.

High-grade concentrates and pellets of +67% Fe, such as XIF products, offer a net environmental benefit over its life cycle compared to classic lower grade, Direct Shipping Ores (DSO) ~62% Fe hematite fines, by saving carbon emissions in steel production. Where this carbon saving is derived from the inherent differences in the chemical make-up of magnetite vs. hematite, where magnetite is exothermic (adds heat to the reaction); has a higher iron content (higher grade); lower impurities; and reduces fluxing. High-grade ores over 65% Fe currently command larger price premiums over standard ores (62% Fe) resulting in higher margins for suppliers of high-grade products. The current global drive for lower emission steel production results in steel producers dramatically increasing their demand for these high-grade ores. Converting to pellets and DRI only increases the benefits over sinter feed, as pellets are of uniform size melt at a more equal rate which significantly reduces the time, energy and as such the resultant emissions to produce steel. There will likely be a significant under supply of high purity pellet feed as demand for these high-end materials increases dramatically by steel producers looking to reduce emission output. This increase in demand for these high-end materials will also include steel mills that use DRI products as contemplated by the Company. This continued shift towards low emission steel globally means that the high-grade XIF magnetite project is uniquely placed to meet these emerging markets. The business case for generating pellet feed, DRI products, and ferrosilicon products from the XIF magnetite are just a few of the scenarios that are being evaluated in the Company's current Preliminary Economic Assessment (PEA).

#### About Botswana International University of Science and Technology (BIUST)

The Botswana International University of Science and Technology is a Government of Botswana supported institution established as a research-intensive University that specializes in Engineering, Science and Technology at both undergraduate and graduate (Master's and Doctoral) levels. It aims to increase competitiveness, economic growth and sustainable development; address the shortage of skilled scientists and technologists; increase movement of skilled people across national and boundaries international boundaries; stimulate research, innovation, and technology transfer; improve society's aspirations to improve health, wealth and well-being; address increased demand for access to tertiary education; and enable a more competitive and innovative tertiary education sector.

The University is a national strategic initiative that is intended to serve as one of the key platforms for transforming Botswana's economy and because of its research emphasis, BIUST works with the private sector to meet emerging skills needs of the industry, as well as identifies challenges that can be solved through applied research. (See, Botswana International University of Science & Technology - Driving Change).

#### Overview

Preliminary work on the Xaudum Iron project has defined a CIM compliant Inferred Mineral Resource

Estimate of 441 million tonnes (Mt) with an average grade of 29.4% Fe, 41.0% SiO<sub>2</sub>, 6.1% Al<sub>2</sub>O<sub>3</sub> and 0.3% P for the Block 1 magnetite XIF. Block 1 is a fraction of the potential XIF magnetite resource. An extrapolated exploration target has defined the XIF to be in the order of 5 to 7 billion tonnes at 15-40% Fe. This exploration target was generated by inversion modelling of ground magnetic geophysical data which was compared and moderated to volumes from drilling data within Block 1 and its potential quantity and grade is conceptual in nature. To date, there has been insufficient exploration to define a mineral resource other than in Block 1, and it is uncertain if further exploration will result in the target being delineated as a mineral resource.

#### About the XIF Project

- the project is located in the North-West District of Botswana and is proximate to the Namibian border and lies thirty (30) miles from the town of Divundu in Namibia. The Trans-Zambezi Railway (TCR) line linking Zambia and Namibia is planned to pass through Divundu providing access to Walvis Bay, Namibia's deep-sea port. The project is also located within forty-three (43) miles of the proposed Mucusso line to Angola's Namibe Port;
- preliminary work on the Xaudum Iron project has defined a CIM compliant Inferred Mineral Resource Estimate of 441 million tonnes (Mt) with an average grade of 29.4% Fe, 41.0% SiO<sub>2</sub>, 6.1% Al<sub>2</sub>O<sub>3</sub> and 0.3% P for the Block 1 magnetite XIF;
- Block 1 is a fraction of the potential XIF magnetite resource. An extrapolated exploration target has defined the XIF to be in the order of 5 to 7 billion tonnes at 15- 40% Fe. This exploration target was generated by inversion modelling of ground magnetic geophysical data which was compared and moderated to volumes from drilling data within Block 1 and its potential quantity and grade is conceptual in nature. To date, there has been insufficient exploration to define a mineral resource other than in Block 1, and it is uncertain if further exploration will result in the target being delineated as a mineral resource. See, Tsodilo Resources Ltd. - News Releases - 441 Mt Initial Resource Estimate for Block 1 of the Xaudum Iron Project, Botswana;
- metallurgical magnetic separation results (Davis Tube Recovery) show an average concentrate of 67.2% Fe, 4.2% SiO<sub>2</sub>, 0.5% Al<sub>2</sub>O<sub>3</sub>, 0.07% P is obtained at P80 grind size of 80 microns, although higher grades are possible at finer P80's. See, Tsodilo Resources Ltd. - News Releases - Excellent Davis Tube Recovery Results Received For Xaudum Iron Ore Project;
- further exploration will be focused on Block 2 to add to the holes already drilled. See, Tsodilo Resources Ltd. - News Releases - New Drilling Results For Block 2A Confirm Significant Upgrade Potential Of The Xaudum Iron Formation, where the Company expects an increase in the resource;
- the XIF Project is a potential large and long-life Tier 1 mining project;
- the PEA will evaluate a number of options for development of the project at a variety of scales including:
  - non-traditional but potentially profitable small-scale startup mining production options such as Ferrosilicon (FeSi) production from a magnetite concentrate,
  - mid-size scenarios, whereby magnetite concentrate would be processed through a concentrator and transported to railhead and onto port facilities;
  - large-scale mining options where full-scale mining would produce a magnetite concentrate processed by a concentrator plant with further potential modification to a pellet which would then be transported to port facilities;
- Botswana has significant coal reserves which can be a major advantage for the Xaudum Iron project, allowing for coal to be used in the beneficiation process to generate iron products such as iron pellets, sponge iron, pig iron, and also steel; and,

- the project would represent the first potential Tier I iron deposit to be considered for development in Botswana. Gcwihaba has identified the project as having the potential to positively impact the future economy of Botswana as the country looks to diversify its economy, and help Botswana to reach its goal of moving away from a dependence on diamond revenue economy and information, refer to the technical report prepared by SRK Consulting (UK) Ltd. for Gcwihaba Resources (Pty) Ltd. titled "Mineral Resource Estimate for the Xaudum Iron Project (Block 1), Republic of Botswana" with an effective date of August 29, 2014 and filed on SEDAR under the Company's profile at [www.sedarplus.com](http://www.sedarplus.com).

## References

Z. Fan and S. J. Friedmann, 2021. Low-carbon production of iron and steel: Technology options, economic assessment, and policy. Joule, Volume 5, Issue 4. Columbia SPIA, Center on Global Energy Policy article.

J. Herbertson and L. Strezov, 2011. Implications for Australian Magnetite Industry of the Introduction of a Price/Tax on Carbon. The Crucible Group, June 2011. Submitted to the Joint Select Committee on Australia's Clean Energy Future Legislation by the Magnetite Network (MagNet).

## About Tsodilo Resources Limited

Tsodilo Resources Limited is an international resource exploration company engaged in the search for economic metal deposits at its Gcwihaba Resources (Pty) Limited ("Gcwihaba") projects in Botswana. The Company has a 100% stake in its Gcwihaba project area consisting of five metal (base, precious, platinum group, and rare earth) prospecting licenses all located in the North-West district of Botswana. Tsodilo manages the exploration of the Gcwihaba projects. Overall supervision of the Company's exploration program is the responsibility of Asele Maboshe a "qualified person" as such term is defined in National Instrument 43-101. This press release has been reviewed and approved by Mr. Maboshe.

## FOR FURTHER INFORMATION PLEASE CONTACT:

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