

TANTALITE PRODUCTION IN ZIMBABWE SINCE 1980

BY TAFADZWA GWINI (MA AFRICAN ECON. HIST)

PRESENTED AT THE GEOLOGICAL SOCIETY OF ZIMBABWE SUMMER
SYMPOSIUM

FRIDAY 29TH NOVEMBER 2019

OVERVIEW OF THE PRESENTATION

- 3 KEY RESEARCH QUESTIONS
- OVERVIEW OF SOURCES OF TANTALUM IN ZIMBABWE
- IMPORTANCE OF TANTALUM TO HUMAN CIVILIZATION
- INTERSTING FACTS ABOUT TANTALITE IN ZIMBABWE
- OVERVIEW OF THE TANTALITE INDUSTRY IN ZIMBABWE SINCE 1980
 - THE RELATIONSHIP BETWEEN LOCAL PRODUCTION AND WORLD PRICES
 - MAJOR CHALLENGES THE INDUSTRY IS FACING
- PROSPECTS AND RECOMMENDATIONS

3 KEY QUESTIONS OF THE RESEARCH

- DO WE HAVE A FUNCTIONAL TANTALITE INDUSTRY IN ZIMBABWE?
 - TO WHAT EXTENT HAS PRODUCTION BEEN AFFECTED BY WORLD PRICES?
 - WHAT ARE THE MAJOR CHALLENGES THE INDUSTRY IS FACING?
-

IMPORTANCE OF TANTALUM

- The different and unique properties of tantalum makes it crucial to the civilization of the twenty-first century
- Its high strength, resistance to high temperatures and corrosion, ductility, inertness to the human body and other properties makes it useful in numerous industries.
- high melting and boiling point of 2,996 degrees Celsius and 5,425°C respectively, it is useful in the metallurgy industry which accounts for about 20 percent of its consumption
- Today the electronics industry accounts for about 50 to 60 percent of tantalum consumption through manufacturing tantalum capacitors for majority of electronic devices . The tantalum capacitor has a high capacitance, that is the ability to store an electrical charge, per volume and weight. This makes tantalum capacitors more ideal than their alternatives, for instance, those made from aluminum.

OVERVIEW OF SOURCES OF TANTALUM IN ZIMBABWE

- The mineral is found invariably in pegmatites and dykes usually derived from granite rocks. Alluvial deposits are common in Zimbabwe. Apart from coltan, other tantalum-bearing minerals found in the country are microlite and simpsonite.
- The tantalites, microlite and simpsonite usually occur in lithium-bearing pegmatites. Minerals associated with tantalite in Zimbabwe are beryl, tungsten, lepidolite and cassiterite
- Northern Zimbabwe, West of Great Dyke (Hurungwe, Kariba and Guruve) - 35 mines (1990)
- N. E. Zimbabwe & Harare area, East of Great Dyke (Mudzi, Mutoko, Shamva, Bindura, Harare, Murehwa) - 75 mines as of 1990

Source: D. S. Bartholomew, 'Base Metal and Industrial Mineral Deposits in Zimbabwe, *Mineral Resource Series* No. 22, Zimbabwe Geological Survey, Harare (1990).

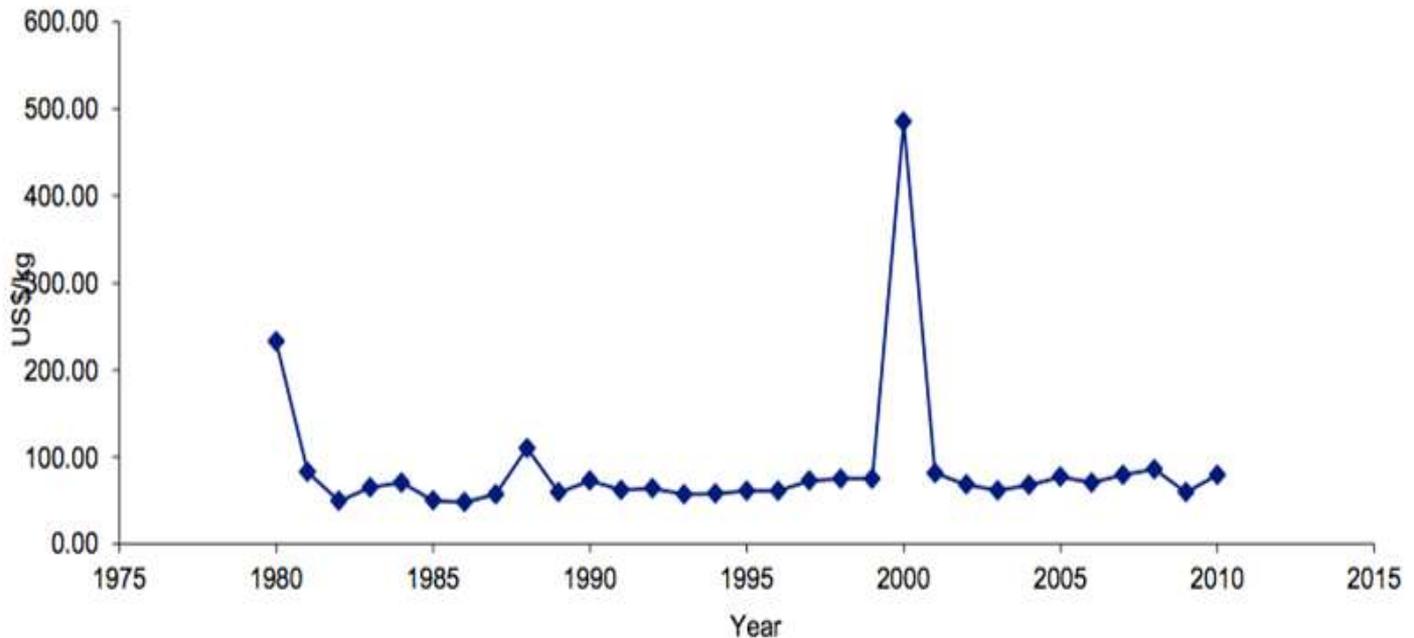
INTERESTING FACTS ABOUT TANTALITE IN ZIMBABWE

- Tantalum is a rare earth element. It shifted from base metal to strategic mineral, & now, critical element.
- There are 300 known occurrences of tantalite deposits in Zimbabwe (Mlambo, 2011)
- Zimbabwe listed among the eleven major tantalite producing countries (John F. Papp, 2006) and among the seven African countries hosting tantalite resources (L. Mlambo & M. Mugoni 2011).
- In 1943 the Government Tantalite Scheme failed to produce tantalite at a profit and in the minerals priority list of the same year, tantalite production on the known claims was considered uneconomic (NAZ documents).
- H. J. Martin (1962, 32) classes Southern Rhodesia as a producer of tantalite ranging from medium to high grade, and was ranked the fourth largest producer of the world's tantalum after Brazil, the Congo Republic and Mozambique.
- Tantalite mining has always been considered a 'smallworkers' enterprise' .

WORLD TANTALUM PRICES

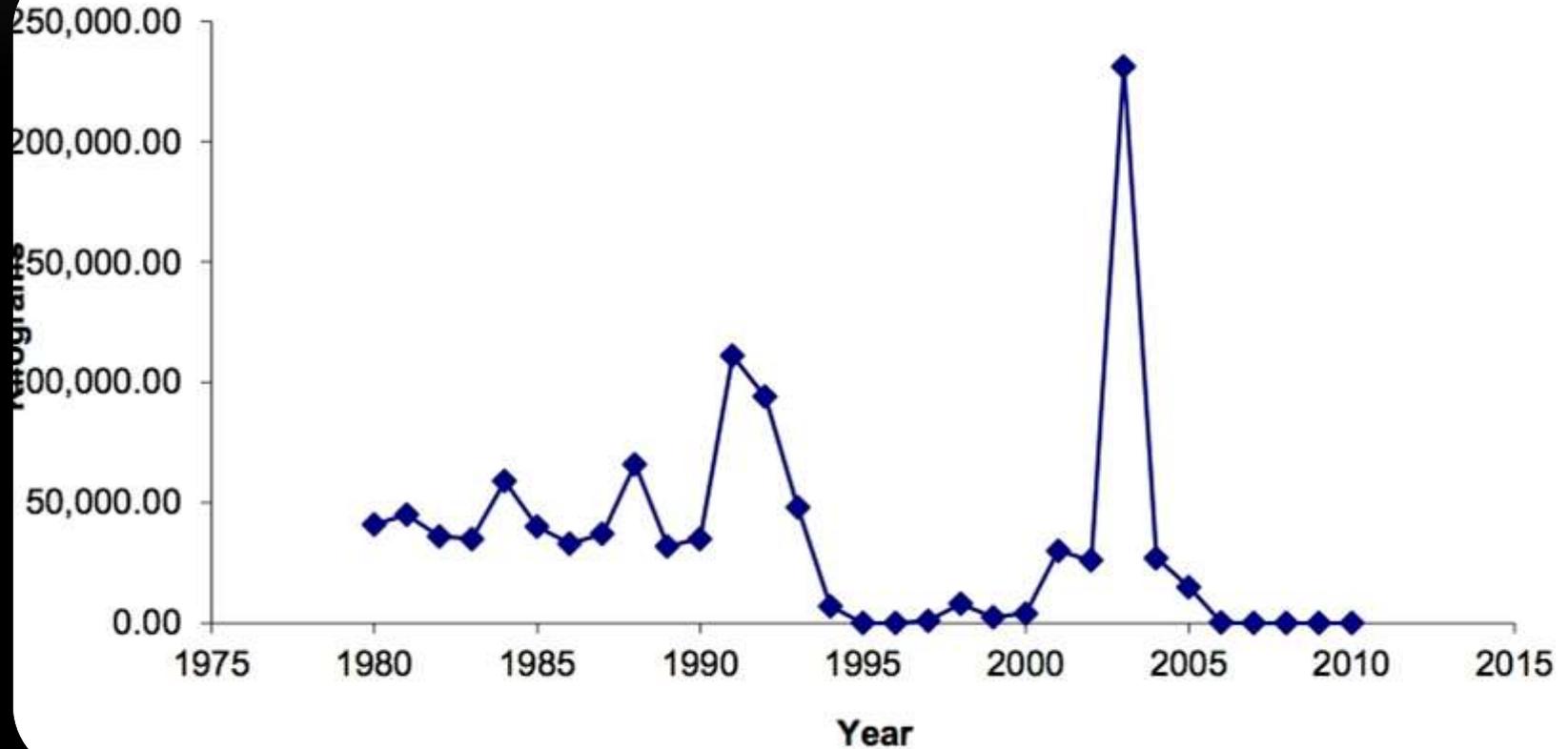
SOURCE: L. MLAMBO & M. MUGONI (2011)

Figure 1: Trend of World Tantalum Prices



This figure shows the trend in world prices of tantalum from 1980 to 2010. Source: Table 1 and author's analysis.

PRODUCTION IN ZIM SINCE 1980



EXPLANATIONS OF PRODUCTION TRENDS IN ZIMBABWE

- Maponga (2001): Falling of tin production affected tantalum output
 - This does not explain the 2002 production boom
- Mlambo & Mugoni (2011): negative relationship between world tantalum price and local production of tantalite.-much production is done by small-scale producers, who have a more remunerating and better explored alternative in gold.
 - Production trends seem to be responding to changes in prices
 - Tantalite has always been mined alongside gold and other minerals

WHAT'S GOING ON IN THE TANTALITE INDUSTRY?

- We don't know how much we are producing. Tantalite is mined largely by ASM who prefer to trade it on black market
- Large amounts are said to be smuggled to DRC. Other sources point to Rwanda (*The Global Observatory of Transnational Criminal Networks, 2017*).
- Chinese traders sourcing directly from ASM (information from interviewees, 2018).

RECOMMENDATIONS

- Establishment of a tantalite marketing board
- Absolute indigenization of tantalite mining industry given the industry's higher potential as a small worker enterprise
 - Claims should be owned at district level, by district councils to realize benefits from tantalite production in the country

CONCLUSION

- DO WE HAVE A FUNCTIONAL TANTALITE INDUSTRY IN ZIMBABWE?
 - Yes, and very much alive
- TO WHAT EXTENT HAS PRODUCTION BEEN AFFECTED BY WORLD PRICES?
 - Production is greatly affected by world prices and demand
- WHAT ARE THE MAJOR CHALLENGES THE INDUSTRY IS FACING?
 - The industry is disorganized and ASM lack adequate support

ASANTE SANA