



Presentation: “Zimbabwe is Mining”

The Kell Process for beneficiation in Zimbabwe

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A patented hydrometallurgical alternative to smelting of concentrates containing PGMs and base metals

What is the Kell Process?

A patented clean hydrometallurgical alternative to smelting or cyanidation of precious and base metal concentrates and ores

The combination of 3 proven commercial processes currently utilized by the mining industry:

1. Pressure oxidation and base metal refining
2. Thermal treatment of residue
3. Leaching and refining of precious metals

Advantages over traditional smelting & refining:

- **Economic** – substantially lower capital & operating costs ✓
- **Low electricity consumption** – 88% less electricity used (Simulus Engineers December 2017 study) ✓
- **Environmentally friendly** – low CO₂ emissions, no SO₂ emissions, low water use, cyanide free for Au ✓
- **Metallurgical** – fewer constraints on concentrate quality leading to higher flotation recovery ✓
- **Efficient & scalable** – concentrate to >99.95% refined metals in one process, on one site ✓
- **Range of Applications** - polymetallic ores, base & precious metals, autocat recycling, lithium ✓

The investors behind the Kell Process

The Pallinghurst Co-Investors: long-term global investors,
committed US\$1.8 billion



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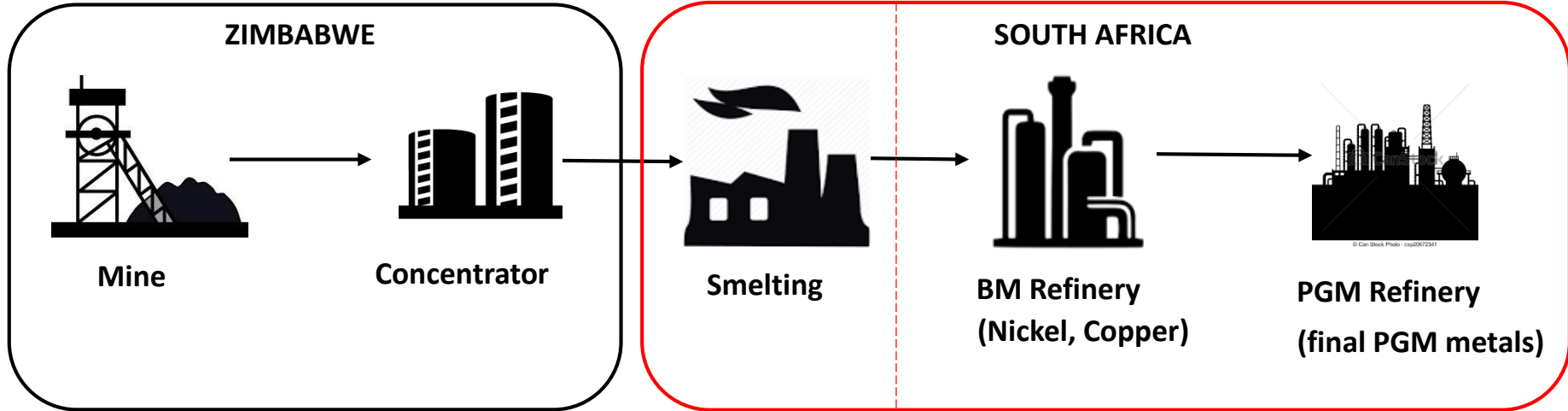


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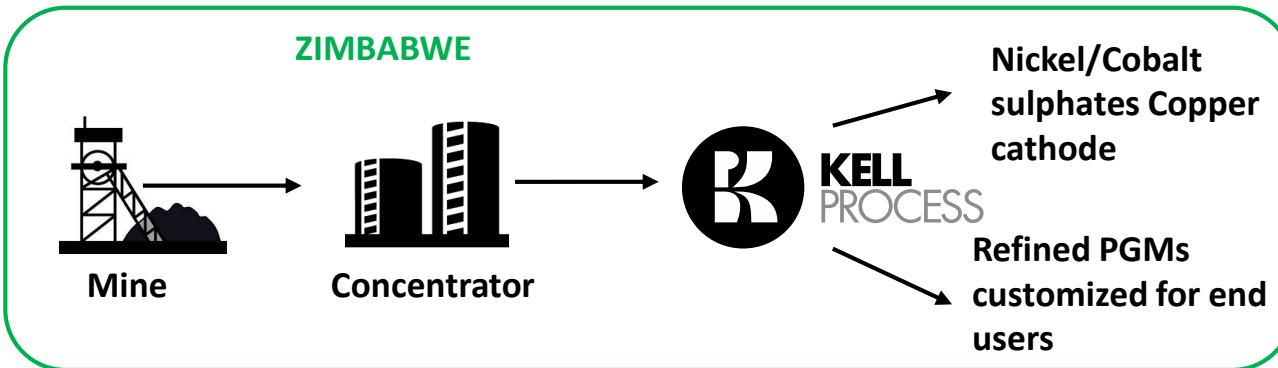
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What does Kell mean for Zimbabwean beneficiation?

Traditional beneficiation



Full beneficiation in Zimbabwe



Traditional cost:

\$3-\$4 billion

10+ years

Kell Process:

\$100 million per plant

18-24 months

Ministry of Mines – Technical team plant visit (Perth, 2016)

