



UNLOCKING SOUTH AFRICA'S NORTHERN  
CAPE ZINC POTENTIAL  
17 October 2019

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# ZINC INTERNATIONAL OVERVIEW

**Vision:** to be the safest, socially responsible 1Mtpa integrated Zn producer in the Q1 median of the global cost curve


**Skorpion Zinc (100% VEDL)**

- Open pit zinc mine and refinery
- Largest integrated zinc operation in Africa
- LoM of 1.5 years
- Refinery design capacity of 150Ktpa




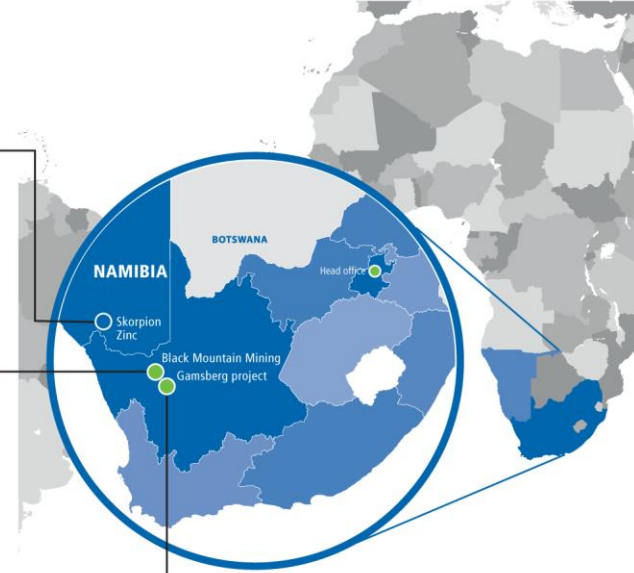
**Black Mountain Mine (69.6% VEDL, 24.4 % Exxaro and 6% employees)**

- Underground operation, mining zinc, lead, silver and copper deposit
- LoM of 4 years
- Plant capacity of ~75Ktpa Zn eq metal in concentrate



**Gamsberg – Our Flagship Project**


- One of the world’s largest Zn deposits
- Gamsberg Phase 1 in operation and will be fully ramped up in H2 FY20 to process 4Mtpa ROM
- Mine was inaugurated by H.E President of SA on 28 Feb 2019

- HSE progress to ZERO
- ZI R&R of 342Mt
- >4,000 employees
- ~160,000 tons of Zn (equivalent) in FY19

**Lisheen**

- Successful closure of operations due to end of LOM in 2015
- World-class closure process underway
- Total tonnes and grade mined
  - ROM (Sept 1999 to Sept 2015): 22.5Mt @ 11.7% Zn and 2% Pb



# BUSINESS WITH PURPOSE UNDERPINNED BY OUR CORE VALUES



**SAFETY**  
VEILIGE WERK

**TRUST**  
VERTROUW

**INTEGRITY**  
INTEGRITEIT

**EXCELLENCE**  
UITNEMENDHEID

**CARE**  
SORG

**RESPECT**  
RESPEK

**INNOVATION**  
INNOVERING

**ENTREPRENEURSHIP**  
ENTREPRENEURSKAP

# OUR SOCIO-ECONOMIC IMPACT IN SOUTH AFRICA



Delivered on past promises	Significant CSR impact	Major environmental investments	Ancillary infrastructure investments
<ul style="list-style-type: none"> <li>Developed Gamsberg asset (existed for last 40 years) within 5 years of acquisition</li> <li>~R5.4bn invested in Gamsberg, add. ~R16bn (Phase 2 &amp; Smelter)</li> </ul>	<ul style="list-style-type: none"> <li>Invested ~R80 mill for Human Resource Development</li> <li>Invested ~R29 mill in SA for Local Economic Development</li> <li>Examples are: upgrade of Aggeneys Public Clinic, cancer outreach program, benefiting ~21,000 people</li> </ul>	<ul style="list-style-type: none"> <li>Unique biodiversity agreement</li> <li>22,900 ha land acquired for biodiversity offset</li> <li>Fully HDPE lined tailings dam facility – first of its kind in South Africa</li> </ul>	<ul style="list-style-type: none"> <li>Developed water infrastructure transferred to the public utility (Sedibeng)</li> <li>Employee housing and town development</li> <li>Power infrastructure</li> </ul>



- **30% of our direct workforce at Gamsberg is female, a number that we are working hard to grow through initiatives such as:**
  - Preferential hiring practices
  - Training and preparing women for promotion
  - Coaching and mentoring of women
  - Implementation of favourable working policies for young mothers

# SOUTHERN AFRICAN ZINC CLUSTER UNRIVALLED OPPORTUNITY FOR LONG-TERM LOM & ORGANIC GROWTH



## Southern Namibia Cluster



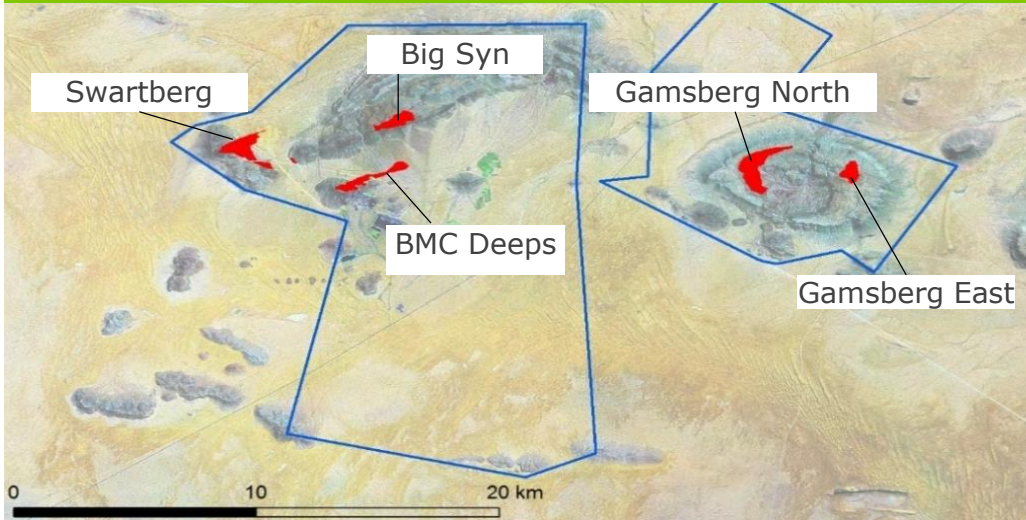
### High value Resource Base to enable long LOM and expansions

- >40km of prospective strike length – BMC
  - 20km along Swb, deeps, Gamsb trend
  - 10km on Big Syn trend
  - 10km on Gamsberg

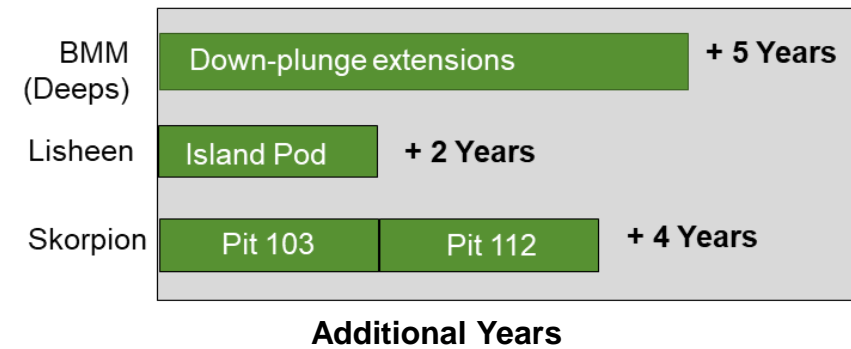
### Best Zn Address in Africa

- Extensive Greenfields tenement portfolio (>5,000km<sup>2</sup>)
- Underexplored mineral belt with significant discovery potential
- New generation geophysics underway to generate new drill targets

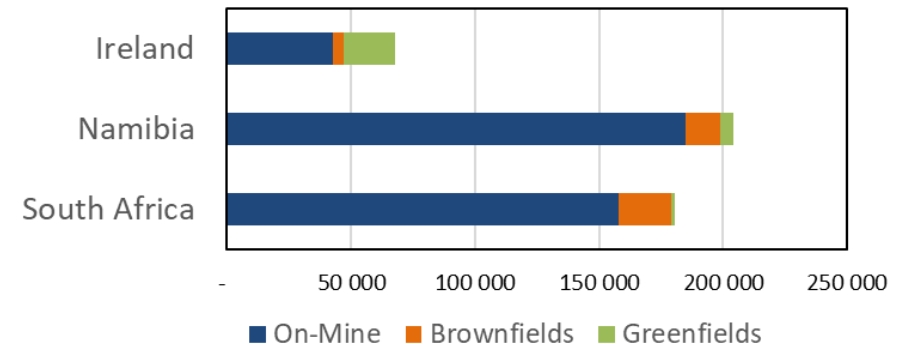
## RSA/Northern Cape Cluster



### VZI Increase of LOM since Acquisition



### 450,000m Surface Exploration Drilling



# GAMSBURG – DREAM TO REALITY

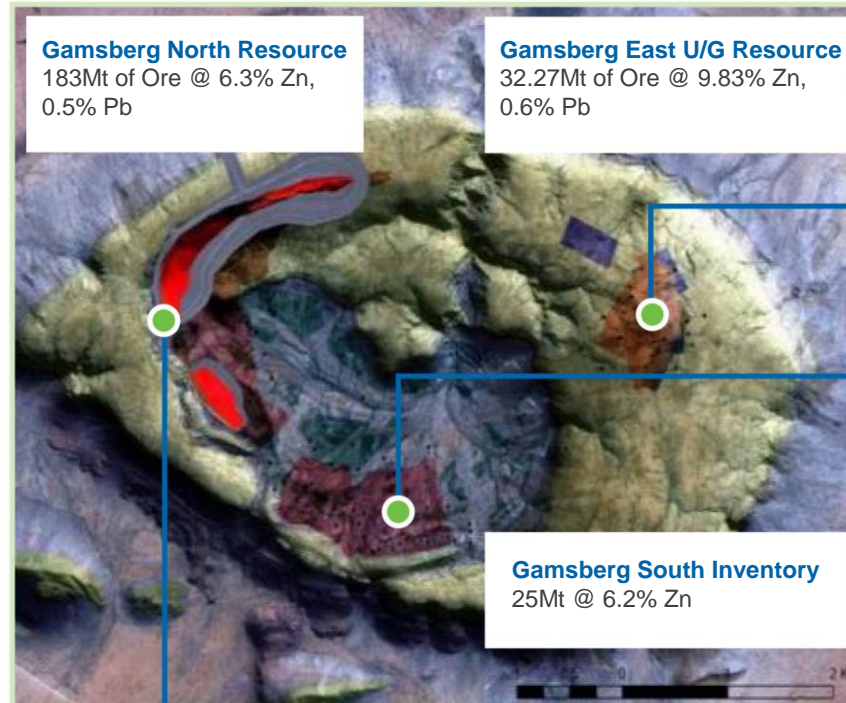
## Phase 1 Project complete

### Gamsberg Project (Phase 1) : 250Ktpa

- Current project (open-pit mine, concentrator and related infrastructure) 4Mtpa ROM: **250Ktpa MIC**
  - **US\$400 million** investment
  - 4Mtpa ore, 250Ktpa MIC
  - Commercial production from March 2019, Full ramp up by H2 FY19-20
  - COP at first quartile of cost curve
  - ~ 3,000 jobs during construction, 850 people already employed in the operational phase

### Gamsberg Mega Pit (Phase 2) : 450Ktpa

- Expanded open pit by 4Ktpa ROM
- 2nd concentrator stream of 4Ktpa
- Investment of US\$350-400 million
- Additional metal production: 200-250Ktpa MIC



**Total Potential for Gamsberg 250Ktpa to 450Ktpa to 600Ktpa**

### Gamsberg U/G (Phase 3) 600Mtpa

- New underground option for Gamsberg East 2.5Mtpa
- Potential Expansion of Gamsberg North open pit to U/G
- +150Ktpa MIC

### Gamsberg Extension areas (Beyond Phase 3)

- Good Potential
- Extensive drilling required to firm-up potential

### Gamsberg Smelter/Refinery: 250Ktpa

- Beneficiation to finished metal 250 to 300Ktpa capacity
- Feasibility Advanced
- Investment of US\$800-850 million
- ~6,000 jobs during construction, 1,200 jobs once operational



# TRANSFORMATION OF THE GAMSBERG SITE



South Africa's largest recent mining project with investment of US\$400 million consisting:

One of the world's largest Zn open-pit mine development



World's largest single stream Zinc Concentrator plant



# GAMSBERG PHASE 1 PROJECT EXECUTION



MILESTONES

**Jul 2015**

First blast  
Start  
Mine access  
development

**Apr 2017**

Mine  
pre-stripping  
commenced

**Jun 2017**

Start  
construction  
(Plant and  
Infrastructure)

**Jul 2018**

Ore production  
commenced

**Sep 2018**

Complete -  
(All major  
construction)

Plant  
commissioning

**Oct 2018**

First shipment  
(Zn concentrate)

**Dec 2018**

Start –  
commercial  
production

**Feb 2019**

Mine Inauguration  
by President  
Ramaphosa



**Phase-I**  
Full ramp up to 4Mtpa  
(within 9 -12 months  
from start)

HIGHLIGHTS



**~72 Mn Tons**

Pre-stripping



**~35,000 m<sup>3</sup>**

Concrete



**~7,000 Tons**

Structural Steel



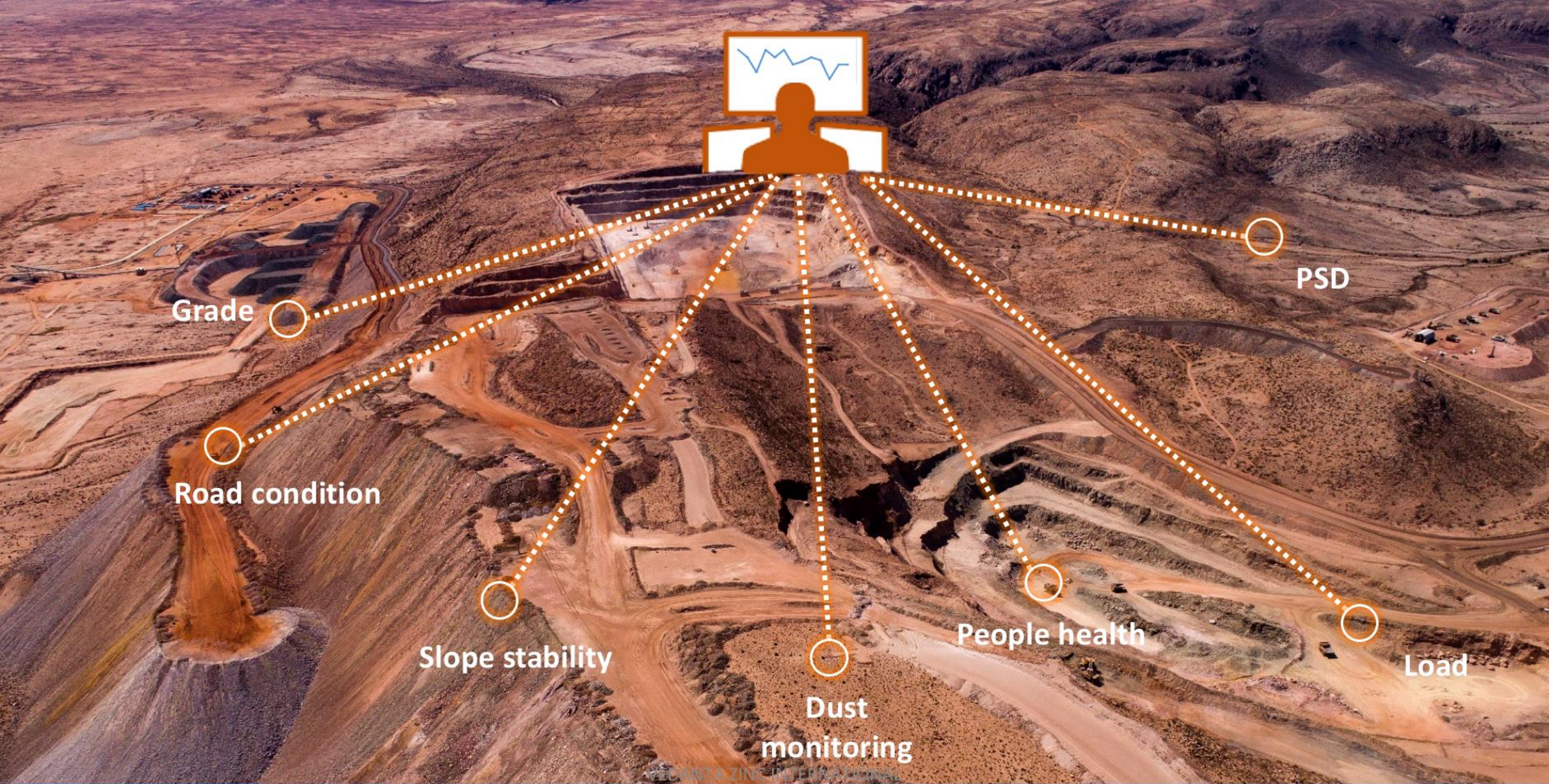
**~22,900 ha**

Bio-diversity offset



**~117 ha**

HDPE-lined Tailings  
storage facility



Grade



Road condition



Slope stability



Dust monitoring



People health



Load



PSD



# ADAPT AND THRIVE

# GAMSBURG DIGITALISATION & TECHNOLOGY ROADMAP



**Smart Ore Movement (MineRP)**  
Integrated spatial data, stockpile grade modelling and blending management, production KPI dashboards

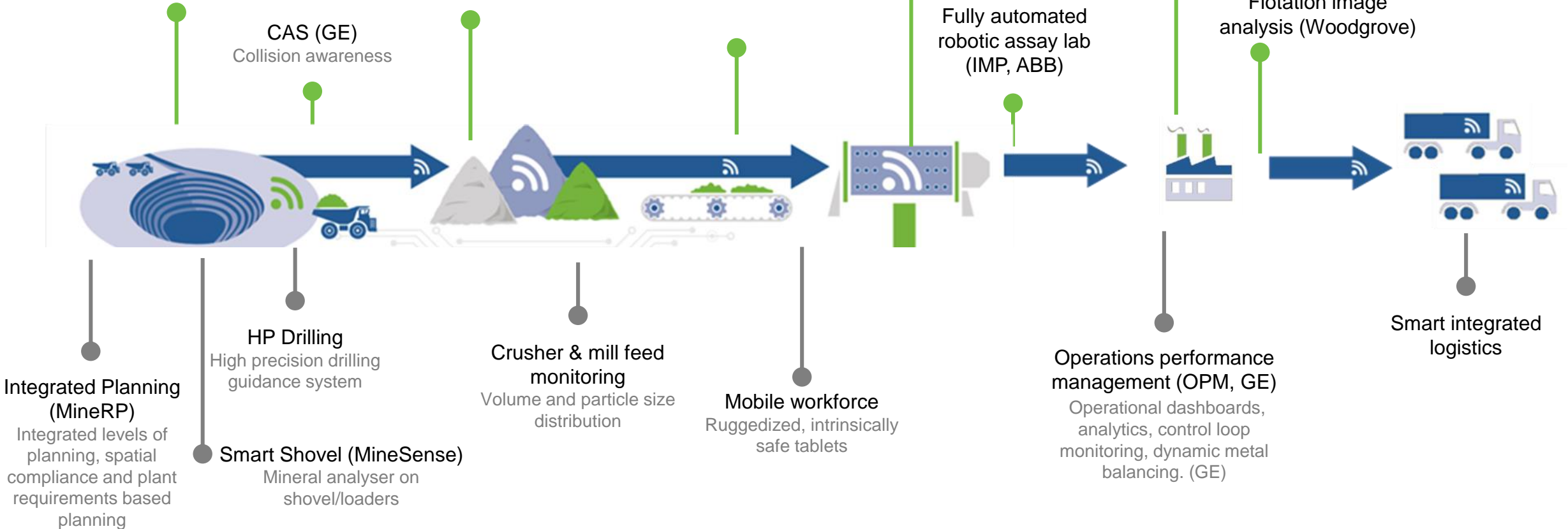
**Spatial Risk (MineRP)**  
Spatial risk management solution

**Plant Automation (Siemens)**  
Control system, SCADA, Historian

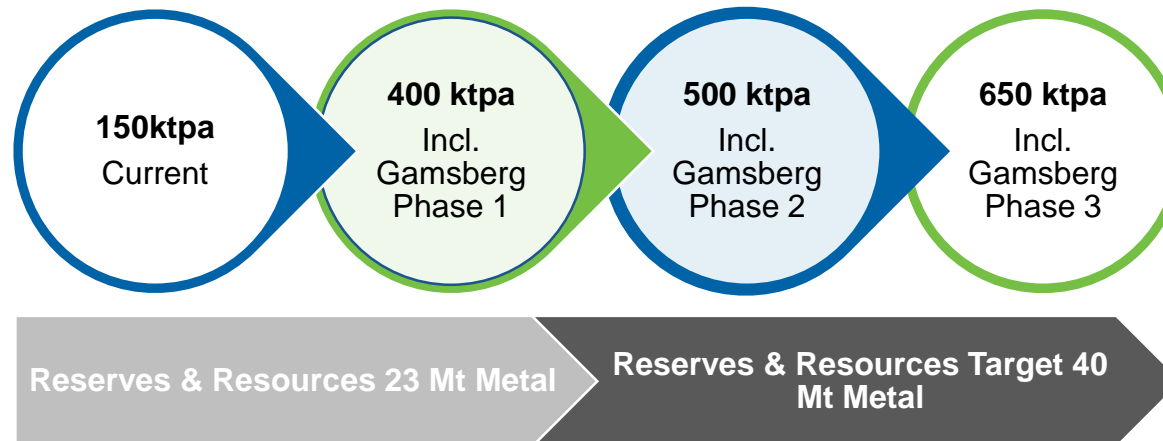
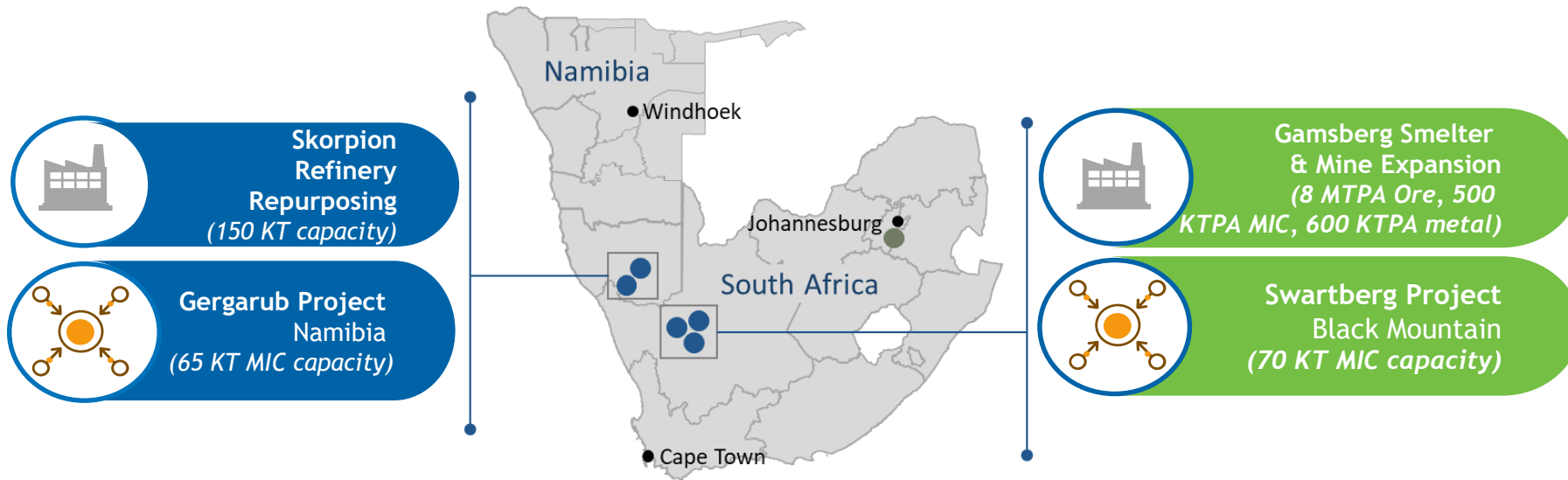
**Advanced process control (Woodgrove)**

**Staged Flotation Reactors (Woodgrove)**

**Flotation image analysis (Woodgrove)**



# THE SOUTHERN AFRICAN GROWTH PIPELINE



- The safest, integrated mining operation in the world
- Employer of choice in the region & CoE in the industry
- A first quartile cost curve producer
- 1Mtpa producer driven by our pipeline of high quality projects
- A digitally-enabled operator
- A successful example of sustainable mining

## Ignite development of metals and co-product based industries

- Zinc beneficiation based:
  - Zn products (Galvanizing, Ingots)
  - Pharmaceutical products
- Co-product based:
  - Sulphuric Acid - Fertilizer industry
  - Manganese dioxide – Dry cell batteries

## Development of ancillary industries for goods & services

- Need for services (engineering, construction & maintenance) to **benefit SMMEs in RSA**
- Power infrastructure components (solar, wind, transmission)

## Infrastructure development across Northern Cape

- Housing and civic amenities for ~10,000 people
- Development of Boegoebaai port as exit port for all types of goods

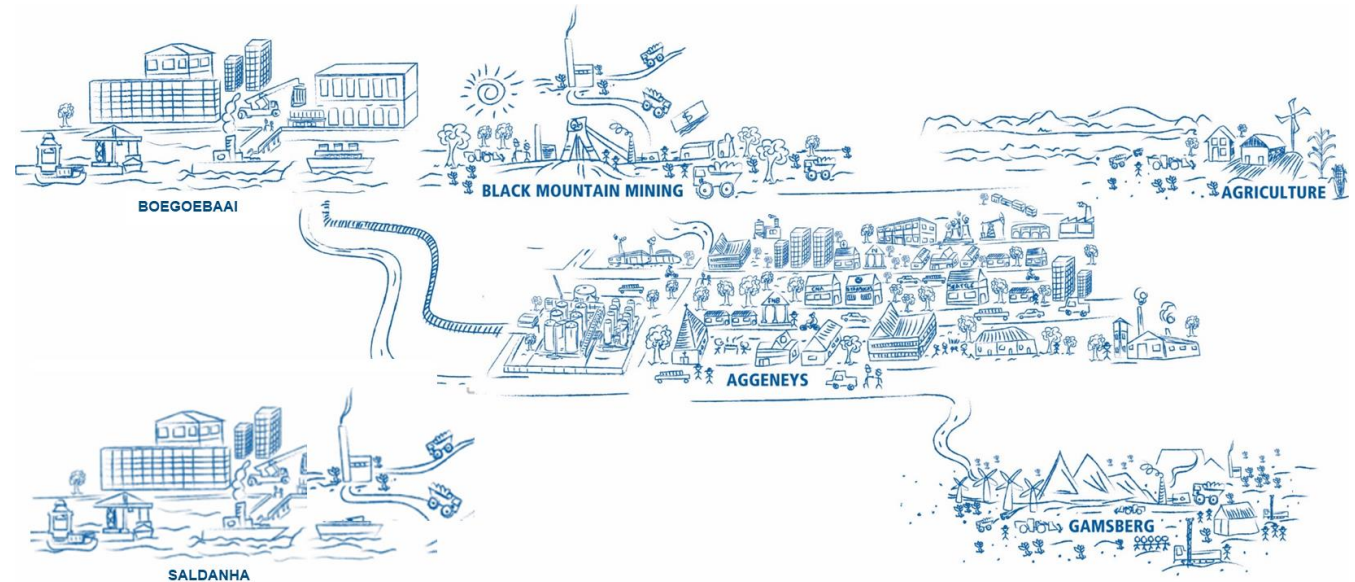
Vedanta sees great potential in an integrated zinc complex in South Africa...

...Vision aligned with South Africa's goals of value addition and beneficiation

Gamsberg potential  
*Top 5 Global Zinc Output*



South Africa's largest beneficiation project





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