



# Welcome to Project Lion





# Mission

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- To be the lowest cost producer of ferrochrome on a global basis
- Install plant with low exposure to variances into 3 key inputs, reductant, chrome ore and electricity prices
- Plant to operate best practice standards
- To establish a self sustainable micro economy in line with the Mining Charter

# The Project

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1.0 Million ton ferrochrome smelter build in three phases of 360 000 t/annum each

- Phase 1 : 2006
- Phase 2 : 2009 – subject to market conditions
- Phase 3 : 2012 – subject to market conditions

Positioned at the Vantech site

- Xstrata's Premus technology
- Utilizing existing infrastructure
- Utilization of the Maputo port facilities

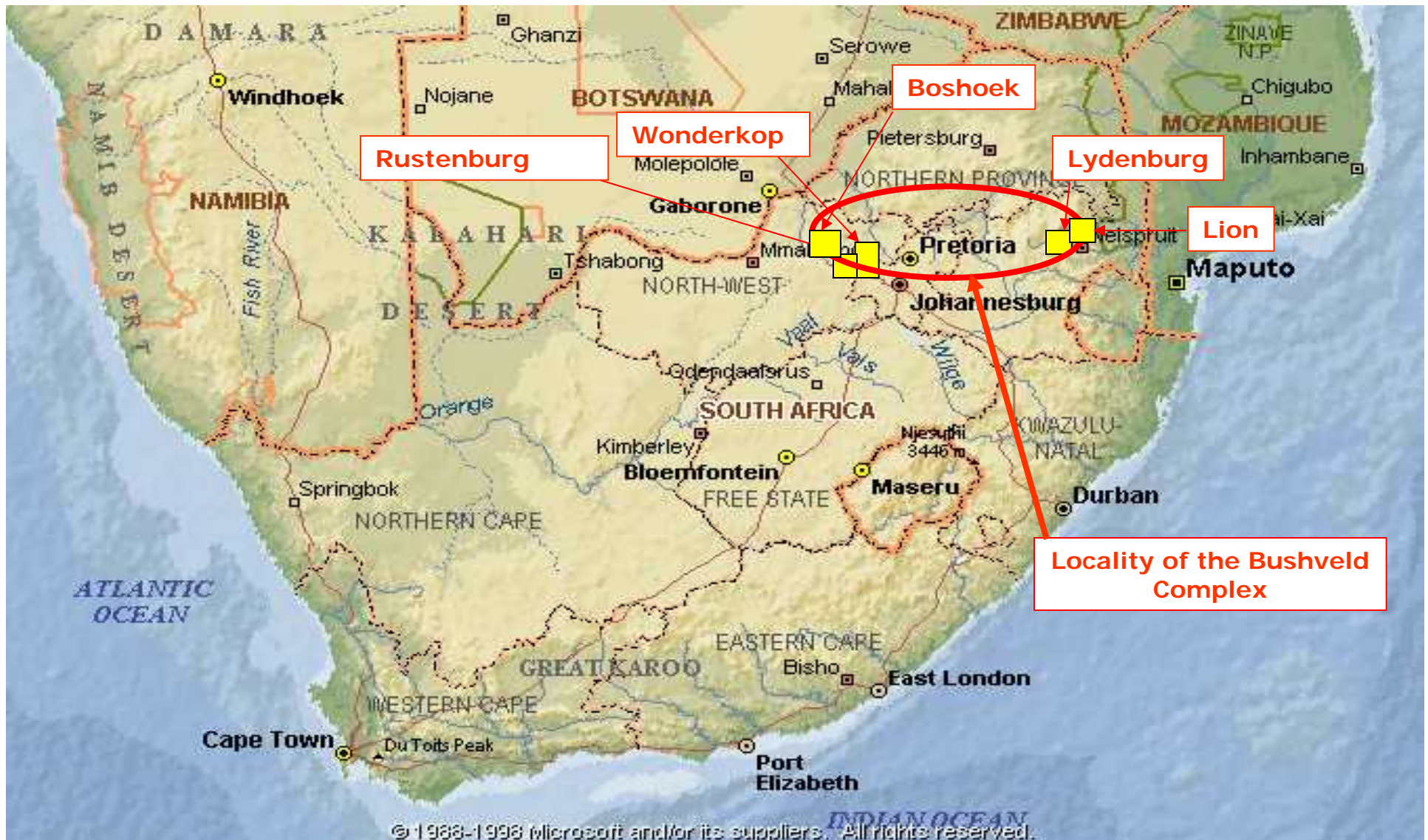
# Project team

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- GM East – T. Riley
  - Excess of 30 years experience
- Project Leader – C.J. Smith
  - 24 years experience
- Project Manager – M. Henrico
  - 26 years experience
- Site Manager – J. Lapau
  - 25 years experience
- Technical Design – R. Curror
  - 30 years experience in Lydenburg
- Design team – Experienced in Premus at Lydenburg

# Locality of Lion





## Plant Location

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- Brownfield expansion adjacent to Xstrata Vantech site utilizing Vantech infrastructure
- Chosen for following reasons:
  - Xstrata-Merafe significant ore reserves in the area
    - Thorncliffe Mine and,
    - Helena Chrome ore deposit
  - The proximity of anthracite mines
  - The proximity of the plant to the Maputo harbor



## Ore supplies

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- Will be supplied with chromite ore from Helena, with Thorncliffe as an alternative source
- Helena and Thorncliffe situated 17km from the Lion site
- Development is already well advanced on the farm Helena 6JT
- Production at Helena in March 2006 will be 40 000 ROM tons per month increasing to 90 000 ROM tons per month by December 2007
- The production will consist of 70% fines and 30% lumpy/chips
- The board & pillar mining method will be utilized



# PREMUS TECHNOLOGY

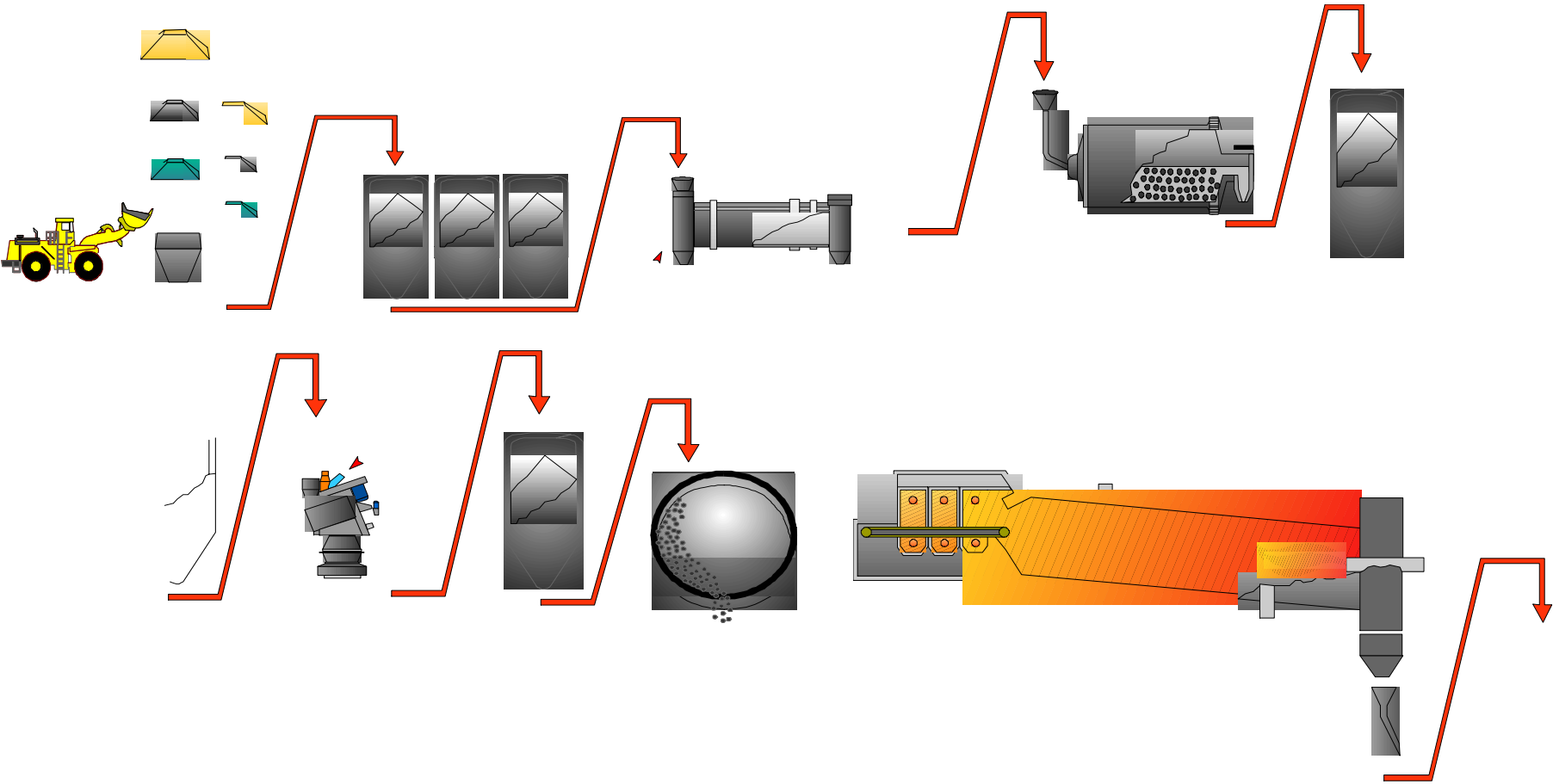


# Premus Competitiveness

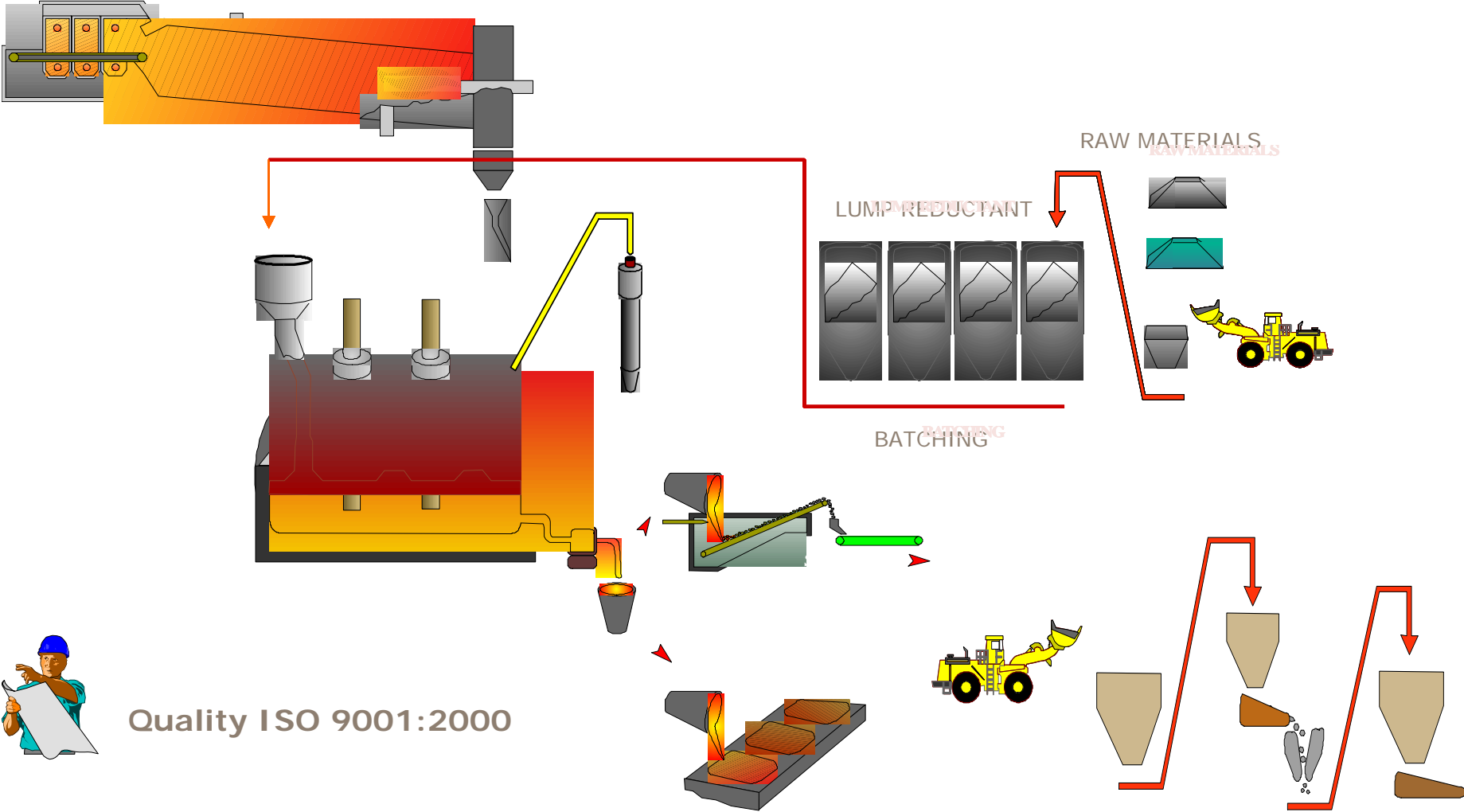
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- It is the most sophisticated and competitive process used today in the production of ferrochrome
- Designed to reduce electrical energy consumption and provide high recoveries of metallic oxides, utilizing low cost reductants and energy sources such as anthracite and  $O_2$
- As electrical energy and chrome ore cost increase (50% of current variable cost structures) the plant's competitiveness improves

# Premus Process Pelletising and Pre Reduction



# Premus Smelting Process



Quality ISO 9001:2000



# Major Considerations

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## Agglomeration

- 70% of chromite generation requires agglomeration

## Power

- Eskom is almost at capacity utilization
- Future expansions must substantially reduce energy requirements
- New electricity capacity is likely to be considerably more expensive

## Reductant

- New capacity - less reliant on coke - not sacrificing metallurgical efficiency
- Apart from difficulty in sourcing Coke, prices increased by 130% over 16 months

# Major Considerations (continued)



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## Customer demand

- Produce a product that remains in demand and which the competition cannot produce with ease (Lower Si)

## Environmental issues

- Manage the environmental impact of our operations to international best practice standards

## Capacity utilization

- Maintain flexibility to take advantage of 60% seasonal cost differential in energy prices

# Premus Process versus Conventional Process



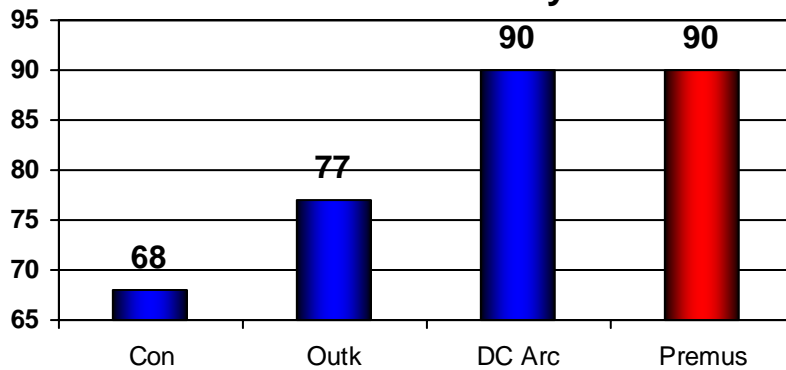
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<u>Characteristic</u>	<u>Premus Process</u>	<u>Conventional</u>
Electrical Energy:	2400 kWh/ton	3900 kWh/ton
Chrome Ore:	90% Recovery	70% Recovery
Other:	100% Fine Ore	Lump/Fine Mix
	60% Fine reductant	All Lump Reductant
	Waste Gas/Heat Utilized	Off Gas Burnt
	High Capital Cost	Low Capital Cost
	Low Silicon Product (-3%)	High Silicon Product (+4%)

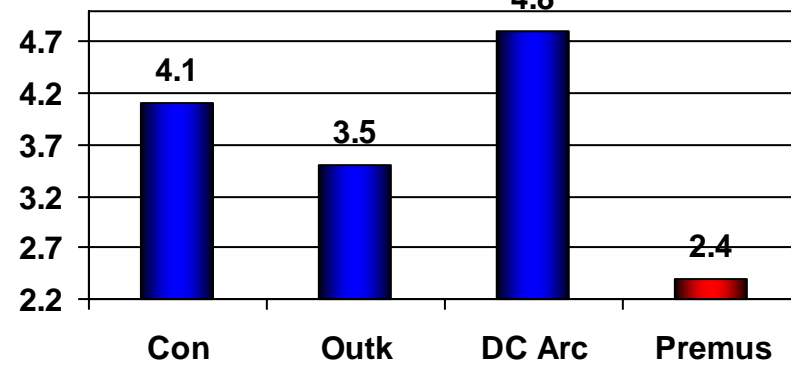
# Comparative Resource Consumption



**Chrome Recovery**

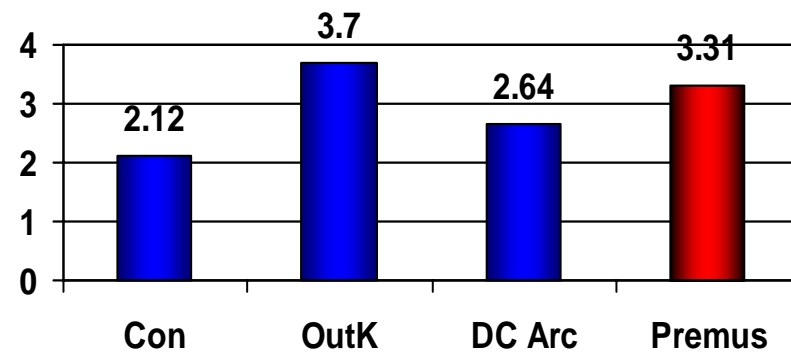
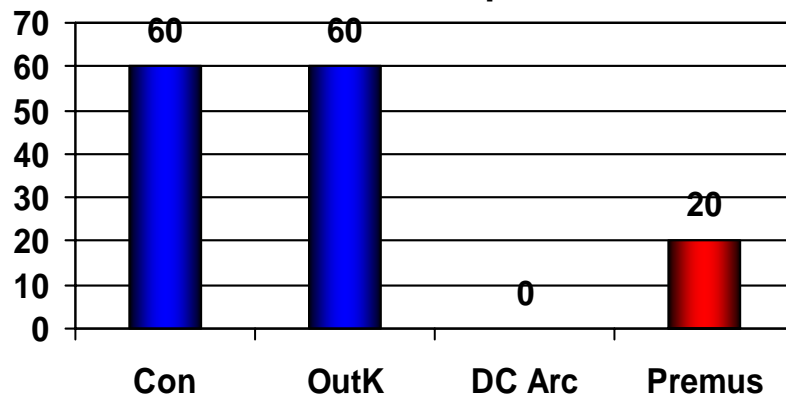


**MWH ton**



**Capital/1000 tons capacity**

**Coke Consumption**



Capital is based on a single 63 MVA unit



# LION

## Health Safety Environment and Community

# Environmental



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## Environmental

- EIA Approved – 19 November 2004
- No environmental incidents reported to date
- Integrated Water use License submitted
  - Currently addressing DWAF's concerns and any outstanding issues
- Air Pollution Permits – provisional approval and permits received – awaiting the issuing of the formal certificates
- Land claims in process

# Project Safety

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Lion is a large project that is executed in a short timeframe. The health and safety of our employees are important to us

- All management and supervisors trained in legal aspects – construction regulations
- Managers appointed per discipline and area of responsibility
- Full time safety officers for each area
- All contractors and employees receive induction training
- HIRA done on all tasks before commencement
- Implementation of Behavioural Based Safety
- Root cause analysis training
- Personnel trained and tested for competency
- All personnel undergo medical screening



## Health and Safety

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- Target zero injuries
- 187 Employees and 867 contractors currently on site
- 8 Dedicated Safety Officers, will decrease to 3 once operational
- One minor injury sustained since January 2005
- Total hours worked 761 727 hours

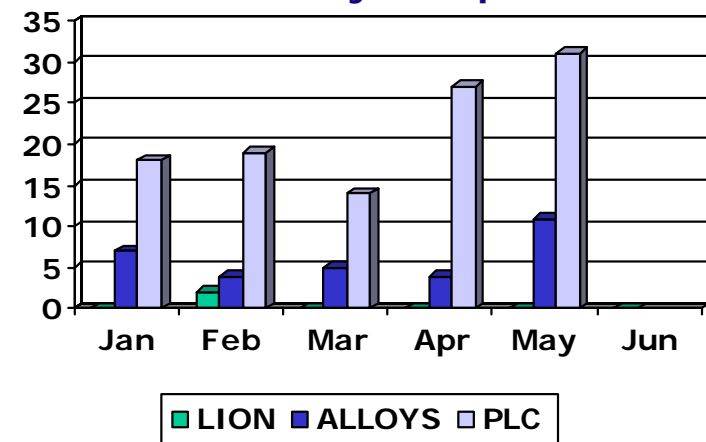
# Community

## Community Forum

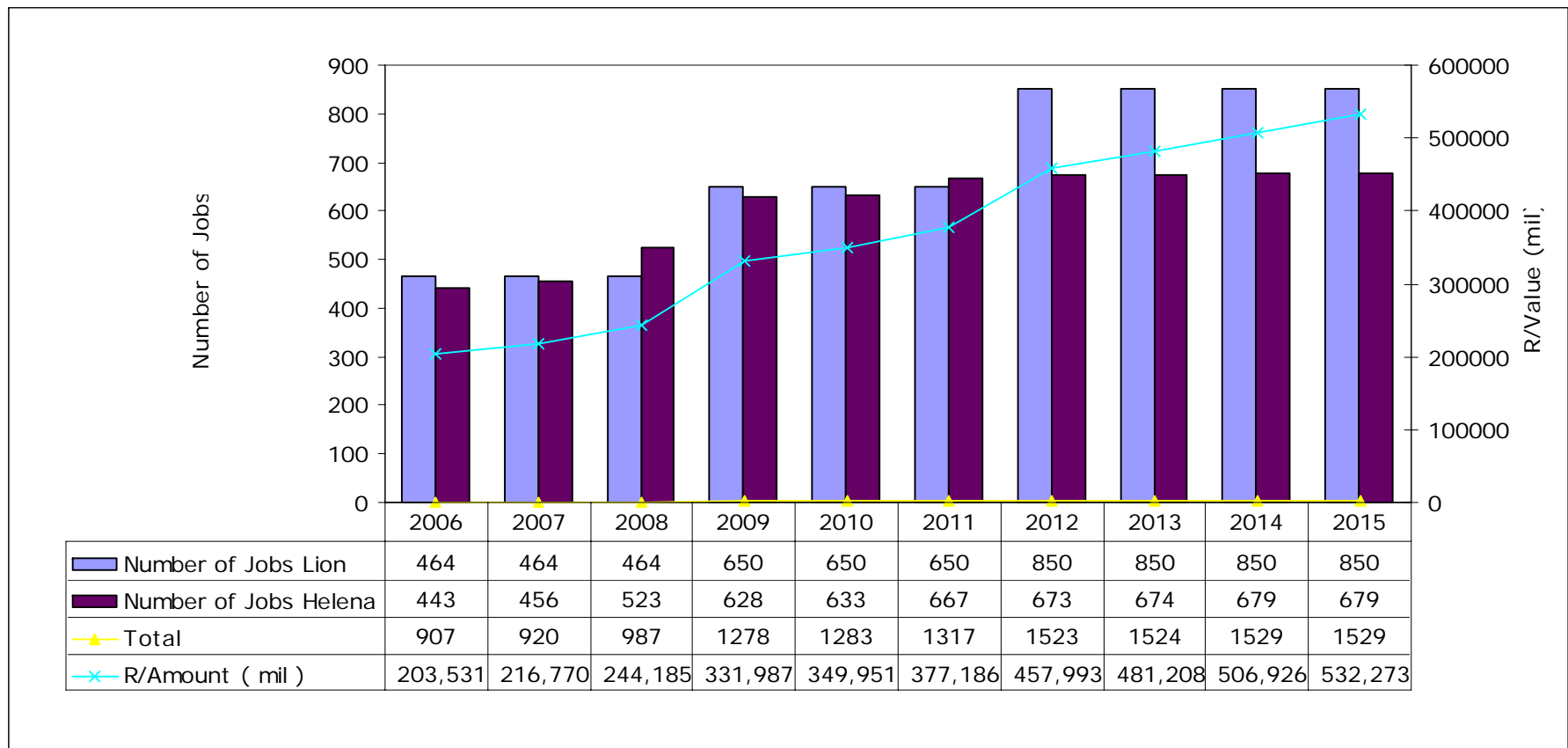
- 18 Communities
- Targeted area of employment
- Forum established
- Monthly meetings
- Skills Development Centre
- Business Park
- Local Labour Desk



## Community Complaints



# Direct Job Creation



# Social Development Programs



Whole School Development	R3,8m over 3yrs
Office Management Skills	R260 000
Academic Enrichment Project	R570 000
BEE/SMME Development	R44 800
Skills Development Centre	R9m
Feeding Scheme	R500 000
Centre for Disabled	R500 000
Multiple-Purpose Community Centre	R2m
Abet Training	R500 000
Home Based Care	R500 000
Electricity Supply	R1m
Plastic/Minerals Project	R500 000

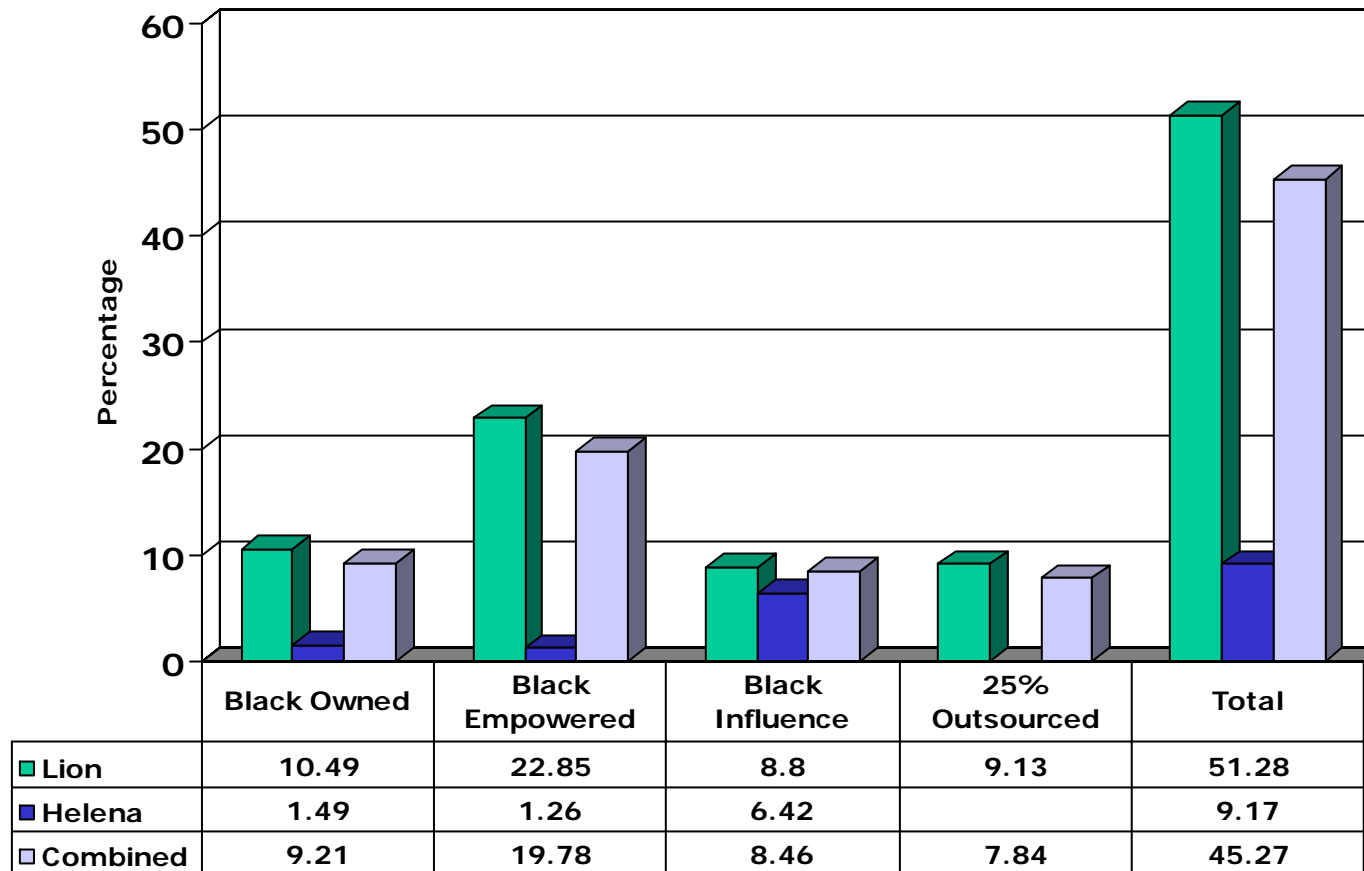


# Human Resources Development

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- A Skills Survey was conducted in August 2004
- Building of Skills Development Centre, aimed at addressing:
  - Operational needs.
  - Training for community in life sustainable skills
- Training for construction phase: - local unskilled labour trained as shutter-hands and welders
- Achieve EE targets by 2007
- Operational Training:
  - Four HDSA qualified candidates developed with career paths and mentorship as future managers
  - Thirty eight Engineering learners in Learnership Training
  - One MQA HDSA experiential student in training
  - Core personnel identified and in training at Lydenburg

# BEE Procurement Projection





# SMME SUPPLIER PARK

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- Development of SMME suppliers in the area
- Supplying of key commodities to the mining sector in the area
- Contribution of 1% to the Park of white owned companies supplying good or services to Lion

## SMME/BEE Developments

- The housing requirement to be outsourced to a SMME/BEE company
- The establishment of a SMME/BEE company providing concrete for Project Lion
- Establishment of a SMME/BEE supplier data base

# Questions?

